

THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. XLIX.

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No. 334.

[Authors alone are responsible for the contents of their respective Papers.]

SECRETARY'S NOTES.

I. The following officers became members of the Institution during the month of November :—

Major T. B. Wood, R.G.A.
Lieut.-Colonel A. B. Cottell, late R.A.M.C.
Captain C. E. Pereira, Coldstream Guards.
Major H. S. L. Ravenshaw, Devonshire Regiment.
Lieut.-Colonel A. Melly, 4th Lancashire R.G.A. (Vols.).
Major the Hon. J. F. Gathorne-Hardy, Grenadier Guards.
Captain A. Street, A.S.C.
Lieutenant the Hon. C. M. P. Brabazon, Irish Guards.
Lieutenant F. E. Gill, Royal Monmouthshire R.E. (Militia).
Captain A. E. S. Heard, Royal Irish Fusiliers.
Captain K. M. Davie, Gloucestershire Regiment.
Captain G. E. Lea, Worcestershire Regiment.
Lieutenant C. E. G. Woolcombe-Adams, R.A.
Captain G. F. Boyd, D.S.O., Leinster Regiment.
Second Lieutenant J. L. Wickham, Scots Guards.
Lieutenant G. R. Bolston, R.H.A.
Lieutenant J. A. McQueen, R.E.
Major N. W. Haig, 6th Dragoons.
Lieutenant C. W. Watney, Indian Army.
Lieutenant W. A. Kennard, 13th Hussars.
Major A. H. M. Taylor, D.S.O., 13th Hussars.
Captain E. G. W. Pratt, Indian Army.
Major B. T. Buckley, Northumberland Fusiliers.
Major H. de C. Eastwood, D.S.O., 1st (King's) Dragoon Guards.
Lieutenant E. O. Lewin, R.F.A.
Lieutenant R. V. Doherty-Holwell, R.E.
Captain C. A. H. Campbell, R.G.A.
Captain C. M. Gibbon, Royal Irish Fusiliers.
Colonel St. J. M. Fancourt, C.B., late Indian Army.
Captain R. E. H. James, Loyal North Lancashire Regiment.

(No officer of the Royal Navy, Imperial Yeomanry, or Royal Naval Reserve joined the Institution during the month.)

2. With reference to the announcement in the November JOURNAL, in connection with the *Cavalry Journal*, the Council desire to intimate that the *Cavalry Journal* is in no way connected with the Institution, but is merely given an office in the building. The *Journal* will be edited by Colonel the Hon. O. V. Lumley, Lieut.-Colonel J. W. Yardley, and Lieut.-Colonel A. Leetham (by permission of the Council of the Royal United Service Institution), under the personal supervision of Major-General R. S. S. Baden-Powell, C.B., Inspector of Cavalry. There will also be local Editors in the Indian and Colonial Commands.

3. The following additions have been made to the Museum :—

- a. Officer's Belt Buckle of the 38th Regiment worn prior to 1881. Given by Major C. H. Wylly.
- b. Waist-coat of the Duke of Wellington. Given by Surgeon-Major W. J. Rendell.
- c. Pair of Epaulettes of the Queen's Own Royal Yeomanry (now the Staffordshire Imperial Yeomanry) of 1850. Given by W. F. Portlock-Dadson, Esq.
- d. Pouch Ornament of the 13th Light Dragoons. Given by Lieut.-Colonel A. Leetham.

4. The Council have selected the following subject for the Naval Essay, 1906, for the Gold Medal of the Institution :—

“What is the Relative Value of Speed and Armament, both Strategically and Tactically, in a Modern Battle-ship, and how far should either be sacrificed to the other in the ideal ship?”

The usual regulations regarding the Essay will be issued with the January JOURNAL.

5. The first Lecture of the Course of **MILITARY HISTORY LECTURES** to be delivered by Dr. Miller Maguire, on the subjects of the May Examinations for promotion, will take place at 4 p.m. on Monday, 8th January. Subsequent Lectures will be fixed for dates suitable to the majority of the officers attending the Course. Members of the Institution will be required to pay a fee of 10s. 6d. for the Course, non-members one guinea. Application to attend should be made to the Secretary at once.

6. The attention of Members is drawn to the fact that the JOURNAL Index for the last six months is inserted at the end of the current number. The Indexes for the future will be found appended to the June and December numbers of the JOURNAL.

THE NORTH-WEST FRONTIER OF INDIA.

AN ADDRESS DELIVERED TO THE OFFICERS OF THE EASTERN
COMMAND ON THE 17TH NOVEMBER, 1905.

*By Field-Marshal the Right Hon. the Earl ROBERTS, V.C., K.G.,
K.P., G.C.B., O.M., etc.*

GENTLEMEN,

I am here this afternoon at the bidding of your General, Lord Methuen, and I can assure you it gives me great pleasure to obey his mandate and deliver a lecture to the officers serving in the Eastern Command. I earnestly hope that I may be able to induce some of you to feel with me on a subject I have greatly at heart, and the intelligent understanding of which, by the nation generally, I believe to be of vital importance to the security of this great Empire.

I have been much concerned to find how large a proportion of my fellow-countrymen take so small a practical interest in what I may call the possible objectives of the land forces of the Crown, and how little they realise the enormous strain that would be placed upon them were they called upon to carry out a prolonged war against a formidable European Power. Being seemingly content with the fact of our having a powerful Navy, and forgetting that a Navy alone cannot bring a war against an enemy possessing a land frontier to a successful conclusion.

It is with a view to pointing out that this is a matter worthy of grave consideration, that I have selected as my subject this afternoon the North-West Frontier of India. My reason being that, although the North-West Frontier of India is by no means the only part of the world where we might find ourselves engaged in war, it is in India that we are to-day in the position of a Continental nation, which we must be prepared to defend by Continental methods.

In order that it may be clear to you how we have been placed in this position, it seems necessary that I should remind you as briefly as I can of the chain of events which, during the last century, has led us into relations with Persia and Afghanistan, and which has to-day brought Great Britain and Russia into such close proximity in the East.

Our first political dealings with the Trans-Indus countries took place at the close of the 18th Century, when Shah Zeman, the ruler of Kabul, invaded the Panjab. His menacing presence in that Province, and the knowledge that more than one powerful native State in India were intriguing with him, led the Marquis of Wellesley's Government to open negotiations with Persia, with a view to inducing that country to bring pressure to bear on the Afghan ruler and oblige him to retreat from Hindustan. In these negotiations Lord Wellesley's envoy, Captain Malcolm, was successful; Persia declared war on the Afghans, who were obliged to evacuate the Panjab.

For the next few years we had little to do with Persia, but in 1807 the serenity of the British Government was seriously disturbed

by the rumour that an invasion of India had been secretly planned in the Treaty between France and Russia at Tilsit, and for the second time we despatched a Mission to the Persian Court. The result of this Mission was a treaty on our part with the Shah, by which he agreed to prevent any European force from passing through Persia either towards India or in the direction of his own ports; while our share of the transaction was the payment of an annual subsidy to Teheran, and the loan of British officers to train the Persian troops.

It will be seen how, from comparatively early times in the history of our rule in India, the fact of Russia's existence in Asia has dominated our Eastern policy. So long ago as 1717, the power of that country had already begun to be felt; she sent an expedition against Khiva in that year; in 1724 she occupied Ghulan; and in 1781 she attempted to settle in Asterabad. Gradually she possessed herself of portions of Persia's Trans-Caspian territories, and in 1804 she inflicted a severe defeat on the Persian Army at Erivan.

For some years from this date the policy of the British Government in India was to strengthen the hands of Persia against her formidable foe. This policy was interrupted for a short time by the trend of European politics, when in 1812 the reconciliation of England and Russia, which followed on Napoleon's rupture with the Tsar, necessitated the withdrawal of the British officers who were serving with the Persian troops; an interruption of which Russia took speedy advantage, by concluding a treaty with Persia under which all her acquisitions south of the Caucasus were confirmed to her. Two years later, however, we renewed our relations with the Court of the Shah, increased our subsidy to him, and entered into an arrangement with him by which Great Britain would have a right to consider any act of Russian aggression upon Persia as a demonstration against India.

By these means we continued for a considerable period to exercise a commanding influence at Teheran, and it is very satisfactory to note that our general bearing towards the Persians was such as to conquer prejudice, disarm jealousy, and raise us high in the estimation of the nation; the result being that, even at the present day throughout Persia an Englishman not only enjoys personal safety, but commands esteem and respect.

The next step in our Central Asian affairs may be described as the turning of our Persian position by the Russians, who endeavoured to bring about military complications in Khorassan, in the hope that by this new move the relative positions of Great Britain, Persia, and Russia would be entirely altered. This hope was fulfilled. Our rulers in India realised that Russia's movements would necessarily bring her into close proximity to Afghanistan, and that it was therefore in that country rather than in Persia, that our influence must be felt if we wished to keep Russia in check. It followed that our intimate relations with the Court of Persia gradually relaxed, and that country had perforce to turn to Russia. Russian counsels began to prevail at Teheran; at Russia's bidding, Persia sent troops into Khorassan; and despatched more than one expedition against Herat.

In 1837, Lord Auckland, then Governor-General in India, sent a Mission to the Amir, Dost Mahomed Khan, under Sir Alexander Burnes, a move which was at once answered by Russia's sending Vitkevitch to Kabul to counteract any influence we might gain by our presence there. Burnes, however, gained no influence, owing in a great

measure to his unfitness for the duty entrusted to him, and also to the vacillation of the Government of India which, having no clearly settled line of policy to guide it, failed to furnish its agents with explicit instructions. Burnes, therefore, quitted Kabul in April, 1838, while Vitkevitch, who had played his cards more skilfully, was encouraged by the Amir to remain.

It was this incident which practically brought about the first Afghan War.

I have entered somewhat at length into the history of our early relations with Russia in Central Asia, in order that you may realise that Lord Wellesley's instinct was correct, when he recognised the danger to India of any European Power becoming its near neighbour, and that you may see how steadily Russia and England were drawn closer together even when their respective frontier stations, Orenburg and Ferozepore, were more than 2,000 miles apart.

I do not propose to weary you with a detailed account of the first Afghan war. You all, no doubt, are pretty well acquainted with the haphazard way in which it was entered into, with the disregard to all military maxims with which it was carried on, and with its disastrous ending. You must all know how Lord Auckland was persuaded against his better judgment to dethrone a ruler who had won the throne of Kabul by his own sword, and was a *persona grata* to his subjects, in favour of a man who had been deposed by the Afghans five-and-twenty years before. You are aware that the majority of the Army was hurried back to India before any attempt was made to settle the country, and that the troops left behind in Afghanistan were scattered in small detachments all over the place. No adequate arrangements were made for the protection of the treasure, ordnance stores, etc., and the attenuated Army was supplemented by local levies, and by a contingent formed partly of Afghans and partly of natives from Hindustan.

My father was appointed to the command of this contingent. He endeavoured in vain to induce the Resident, Sir William Macnaughten, to take ordinary precautions. He pointed out to him the danger of the measures that were being pursued. He begged of him not to trust to local levies, and to place his money, supplies, and stores in some place of safety. But, finding his advice and remonstrances were altogether disregarded, my father tendered his resignation to the Governor-General and left Kabul for India only a few months before the Afghans revolted, murdered Sir William Macnaughten, and massacred the whole of the British and native troops.

One is glad to think that there was a brighter side to this war. Nott, by dogged courage, maintained his position at Kandahar. Sale, guided by the wise counsel of Broadfoot, defended Jalalabad. And Pollock, by his masterly advance on Kabul, rescued the British prisoners and restored the prestige of the British name.

Russia, on hearing of the large Army that was being sent into Afghanistan, proceeded to organise plans for allaying the commotion which she had too precipitately created. As, however, owing to internal troubles, she could make nothing of Persia at the time, she turned her attention to Khiva, and issued a manifesto in December, 1839, in which she declared that the object of the expedition then being sent to Khiva was "to strengthen in that part of Asia the lawful influence to which Russia has a right."

This expedition proved unsuccessful, partly on account of the extraordinary severity of the weather, but more particularly from the fact that Orenburg, 800 miles distant from Khiva, did not furnish to Russia that strategic base for operations beyond the frontier, which Ferozepore, faulty, remote, and unprovided though it was, offered to India during the first Afghan war.

For some years after these events, there were few salient points of interest to us in the politics of Persia and Afghanistan, until in 1856, when, in consequence of Persia having proceeded against and captured Herat, we declared war against her and instigated the Afghans to attack her, while an expeditionary force was despatched from India to the Persian Gulf and landed at Karrack on the 4th December.

The war only lasted three months, peace was signed on the 4th March, 1857, and Herat was restored to Afghanistan. What troubled Persia even more than this defeat was the fact of our having subsidised the Afghans against her. The invasion of her southern provinces by the troops from India was regarded as the natural consequence of her own occupation of Herat—a mere repetition, indeed, of what had occurred in 1838; but that we should completely reverse the political status which had been established on her eastern frontier, and should supply the Afghans—from whose perfidy we had so severely suffered—with arms and money to enable them to attack our former friends, disconcerted the Shah's Government exceedingly, and greatly increased its soreness on the subject of Herat—the more so, indeed, as before the rupture with us, Persia had been making strenuous efforts to persuade Dost Mahomed into an alliance with herself.

We had no need, however, of assistance from the Afghans during the Persian War, but our concessions to them bore good fruit later on, when they materially helped us by remaining neutral during the Mutiny of 1857.

The interval between the close of the Persian War and the death of Dost Mahomed Khan at Herat in 1863, was one of comparative repose in the politics of Central Asia. But at the close of it, Russia, having recovered from the shock of the Crimean War, entered on that career of conquest in the valley of the Jaxartes, which has since made her mistress of the Uzbeg Khanates, and brought her to the banks of the Oxus, but her movements excited little attention in India at the time.

Before I proceed to trace the later progress of Russia in Central Asia, it seems advisable that I should remind you of the circumstances which led up to the second Afghan War.

After Dost Mahomed's death, a long struggle took place between his various sons before Sher Ali, the favourite son, whom the Dost had nominated as his heir, possessed himself of the throne. It was, therefore, not until 1869 that Sher Ali became ruler of Kabul, and between that time and 1878—when the second Afghan War broke out—Russia had approached much nearer to the Afghan frontier—so near, indeed, as to make her vicinity a source of considerable anxiety to the Amir, who naturally looked to us for assistance and protection. Notwithstanding his soreness and disappointment at the many rebuffs he had received from us, in the earlier part of his career, Sher Ali was still quite prepared, in 1873, to enter into a treaty, offensive and defensive, with us. He had been received in a

princely manner by Lord Mayo at Umballa, four years before, and although, as was to have been expected from an Afghan, he had returned to his country dissatisfied with the money and other presents he had received, he carried away with him a strong personal feeling for the Viceroy, who had welcomed him so kindly and courteously, and he evidently wished to be on friendly terms with the British. In 1872 came the unfortunate Seistan question. Sher Ali had placed the matter in our hands. In obedience to our wishes he had refrained from attempting to recover the territory, which, formerly belonging to Persia, had gradually been retaken by her from Afghanistan. Our decision in favour of Persia, though undoubtedly right in itself, offended Sher Ali deeply, and he considered that he had been treated unjustly by us. This feeling of anger and discontent was greatly aggravated in the following year, 1873, when Sher Ali's envoy failed to obtain at Simla from Lord Mayo's successor, Lord Northbrook, that support in his domestic and foreign difficulties which the Amir, not unreasonably, hoped for, viz., the recognition of his favourite son, Abdulla Jan, as his heir, and a direct promise of aid against Russian aggression. The Indian Government considered that to accede to the first proposal might involve us in a too active interference in Afghan affairs, and the only terms on which we would agree to the second were altogether too one-sided for the Amir to accept.

From that day we lost our hold over Afghanistan, and the strong united kingdom we had helped to consolidate by large presents of money and arms, became to us, instead of a source of strength, a weakness and an actual menace. Sher Ali never trusted us again, and knowing that the integrity of his kingdom depended upon his having the protection of either Russia or England, he decided on throwing in his lot with Russia. This he did most thoroughly, and ever afterwards treated all our overtures with supreme contempt.

It was, therefore, in a most antagonistic frame of mind that Lord Northbrook's successor, Lord Lytton, found Sher Ali, when three years later he took up the Viceroyalty of India. During these three years the Amir had refused to accept our annual subsidy, and had hesitated for some months to take over the stands of arms which had been sent to Peshawar for him. The Government of India, recognising the necessity for obtaining reliable information of what was going on in Afghanistan and the countries beyond, and feeling that it was useless to expect the Amir of Kabul to come to any satisfactory terms with us, unless we were prepared to meet him at least half way, determined, if possible, to improve our strained relations with Sher Ali. With this intention Lord Lytton proceeded to make overtures to the Amir, but they met with no response. Sher Ali refused to receive the special messenger it was proposed to send to Kabul, and only assented, with a very bad grace, to an alternative measure, viz., a meeting at Peshawar between our envoy, Sir Lewis Pelly, and his own representative, Syed Nur Mahomed. The result of this meeting, which took place in the early part of 1877, showed clearly that Sher Ali's decision, to throw himself into the arms of Russia, was not to be shaken. For although our envoy was empowered to sign an offensive and defensive treaty with the Amir, and to recognise Abdulla Jan as his heir—to meet, in fact, all the demands which had been made and refused at Umballa in 1869, and at Simla in 1873—Sher Ali would not listen to the sole condition we insisted upon in return for undertaking such serious responsibilities,

viz., to permit British officers to reside at certain places on the frontier of Afghanistan, though not at Kabul, if this were objected to.

Soon after the Amir had declared this decision, our agent at Kabul (who had been treated almost as a prisoner) was withdrawn, and no further communication was held with the Amir, until news arrived that a Russian Embassy had been received at Kabul.

The events which followed are too recent and well known to need description here, but I would call your attention to the undeniable fact that the second Afghan War, like the first, was brought about by the presence of, and the hearty reception given to, a Russian Mission in Kabul.

It is a very instructive study to contrast the state of things forty years ago, and that existing at the present day in Central Asia, and I would ask you to look at the map with which you have been provided, and to trace the advance of Russia from the one side, and of England from the other, towards the frontiers of Afghanistan.

In the year 1863, the southern frontier of Russia ran from the shores of the Sea of Aral on the north-west, to the Syr Darya, or Jaxartes River; then, striking almost due east from Julek, it took the line of the Chu River to the Isik Kul Lake. Now, mark, it is contemporaneous with the northern boundary of Afghanistan. Bit by bit this great tract of country has been absorbed into the Russian Empire. Tashkent was captured in 1865; the treaty of Bokhara followed in 1867; the Russian troops entered Samarkand in 1868; and we find the Muscovite columns marching triumphantly into Khiva in the summer of 1873.

Important as these additions of territory were to Russia, they were of little account, so far as we were concerned, when compared with the conquests she soon afterwards made in the neighbourhood of the Caspian.

Russia doubtless felt that her newly acquired possessions would never be secure until she had obtained the same complete control over the warlike Turkoman tribes, as she had acquired over the Tartars of the north. She determined, therefore, to postpone the project of extending her rule beyond the line extending from Khiva, Bokhara, and Samarkand, until she should have brought these places into direct communication with Russia proper, *via* the Caspian. Krasnovodsk, on the east shore of the Caspian, which had been occupied in 1869, provided a convenient base for this new movement. So long as the warlike tribe of the Tekke Turkomans maintained their independence in the fertile Akhal Oasis, paralysing by their raids the Khivans and the timid Persians, the extension of the trans-Caspian Russian power was impossible. A succession of these raids had led to several columns being sent against the Turkomans, even as early as 1871, and the disastrous repulse of one of these under General Lomakin at Geok-Tepe in 1879 rendered a punitive campaign inevitable. General Skobelev was appointed to the command. On the 23rd June, 1880, he occupied, without opposition, the Tekke fortress of Bami, the junction of the routes from Krasnovodsk and Tchikishlar to Geok-Tepe; and in the winter of 1880-1 he conducted the expedition to Geok-Tepe, and brilliantly retrieved the honour of the Russian arms in Central Asia. A few days after these victories Askabad was occupied.

In 1884, Merv and the Turkoman Colonies on the Murghab came into the possession of Russia. This was followed by the seizure of Sarakhs—a position of great strategical importance.

From this brief outline of Russia's movements, it will be seen that, in spite of all promises to the contrary, each success was invariably followed by the extension of her frontier line. The fact is, that she could not stop until she had consolidated her power along the northern frontier of Persia, and perfected her communication between the Caspian and her possessions in Central Asia. Russia could no more have stopped then, than England could have stopped east of the Ganges and the Jumna at the beginning of the last century, or, in later years, south of the Sutlej.

On comparing the actual distances between the advanced posts of Russia and England in Asia in 1863 and at the present time, we find that, in 1863, on the Orenburg-Balkh line, Russia's frontier post near Perovsk was 1,148 miles from Peshawar, and on the Caspian-Herat line, the frontier post (Askabad) was 1,100 miles from Jacobabad. While in 1905 on the former line, Termez, Russia's present frontier post, is only 585 miles from Peshawar, and on the latter line, Kushk is only 559 miles from Chaman, the terminus of the Quetta Railway. Which means that, during those 42 years, Russia has advanced more than 540 miles nearer to us, while we have practically remained stationary.

The progress of Russia might possibly have been checked, had England 50 years ago responded to the wish of Persia that the friendly relations, which formerly existed between her and Great Britain, should be restored; but that opportunity was let slip, and nothing can now alter the fact that the termini of the two Russian railways are at the present time on the borders of Afghanistan. These railways have been connected with the main railway system of Russia, so that she has two alternative lines of communication with her Asiatic possessions, one *via* the Caspian Sea to Merv and Kushk, the other *via* Tashkent and Samarkand to near Termez. Further, these two lines are connected between Merv and Samarkand *via* Charjui, giving Russia a lateral communication of the greatest strategical importance, for by it troops can be rapidly transferred from the Herat-Kandahar line to the Balkh-Kabul line. Moreover, the Oxus is navigable between Charjui and Termez, and Russia has a fleet of steamers on that river capable of transporting several hundred tons a day.

From this summary you will readily understand what I mean when I say that England has now become a Continental Power; and it is as a Continental Power that she must henceforth be prepared to defend her Eastern possessions.

When Russia had the whole of Turkestan before her, it would have been out of the question for England to have attempted to stop her progress, but when the confines of Afghanistan were reached, it became absolutely necessary to lay down the line over which Russia could not be allowed to cross, without its being considered a *casus belli*.

This line was marked out some 20 years ago, and to keep Russia strictly to it is now the settled policy of England.

Gentlemen, I hope I have not wearied you with my story of the North-west Frontier of India. I have tried to show you how step by step, I was going to say involuntarily, but certainly with no great

lust of conquest, we have been led on by the force of circumstances towards the north-west in the same manner that Russia has found her way to the south-east, until to-day we stand almost conterminous with that Power, and find ourselves burdened with the duties of a Continental nation.

Let us turn our thoughts for a moment to the country we have to defend. Great Britain's beneficent rule brings peace and security to millions of people in India, and it is no exaggeration to say that the benefits of that rule are appreciated by all the more thoughtful and sound-minded men of that country. The Princes of India were very genuine in their offers of help when we were in difficulties in South Africa. The Native Army has an honest admiration for, and belief in, the British officer. This has been proved on many a hard-fought field, and was strongly emphasised in China by the comparisons which were openly made by the Indian soldiers between our officers and men and those of the foreign nations who took part in the expedition to Peking in 1900. So long as Great Britain shows that she is prepared, not only to enjoy all the benefits connected with our position in India, but is ready to defend her, if required to do so, so long will India be true to Great Britain.

We have lately, I am glad to say, concluded an alliance with that very remarkable people, the Japanese—a people for whom I have a profound admiration. But this alliance does not relieve us of our responsibilities, as some appear to think. Our Indian fellow-subjects have followed with intense interest the successes of the Japanese in their war with Russia. They have realised that for the first time in modern history an Eastern people have proved themselves, as a patriotic nation and as a fighting machine, the superior of their Western foes, and nowhere in the East has this passed unnoticed. I need scarcely point out to you what a fatal blow it would be to our prestige in India, if the natives of that country were ever allowed to believe that England needs the help of Japan, and has made an alliance with her from a hope that she would assist in the defence of our Eastern possessions.

The problem, then, before us is how these possessions are to be defended, and what size Army we should require to successfully oppose Russia in the event of her moving across the Afghan Frontier?

The latter part of this question can only be answered after coming to a conclusion as to the number of troops Russia would be likely to bring against us.

We know that at the close of the late war with Japan, Russia had in Manchuria something like three-quarters of a million of men under arms, and that she was able to maintain that vast number 5,000 or 6,000 miles from her capital by means of a single line of railway. Seeing that Afghanistan is not quite half as far from St. Petersburg as Manchuria, and that there are two distinct railway lines available, we cannot calculate on a smaller number of troops, than Russia had in Manchuria, being placed on the fighting line south of the Oxus.

In the event, therefore, of a war with Russia, it is imperative we should have at our disposal a force certainly not inferior to that which could be brought against us. This is all the more necessary by reason of the very much more difficult nature of the country in which we should have to commence operations, and the uncertainty

as to the attitude of the Afghans and the Tribesmen on our North-west Frontier.

Moreover, it must be remembered that our stake in the result of such a war as we have been supposing would be far greater than that of our opponents, for if we were unsuccessful, we should lose the brightest jewel in England's crown, while, if Russia were defeated, she would be merely left as she was before.

Under the existing organisation of our Home and Indian Armies, we cannot calculate on being able to mobilise more than 300,000 men, after providing for the internal security of India, and this only by utilising the whole of the Regular Army Reserve, and all available Militiamen. How, then, are the remaining 400,000 to be provided, and how can enough men be forthcoming to replace the casualties which are inherent to war, in whatever country or climate it may be carried on?

We all know that it is impossible for us to keep up a Regular Army of the strength maintained by any of the principal European Powers. Their populations are larger than ours, and their Armies are raised by conscription. Conscription is not a system that could be made applicable to our Army, seeing that the main portion of that Army has to serve abroad; and the Voluntary System, involving as it does so great an expenditure of money, necessitates the number of men serving with the colours during the peace time being limited to the lowest possible figure.

On this account and because the demands of foreign service prevent men from being passed rapidly through the ranks, it is impossible to form a large reserve from the Regular Army.

There is but one way, in my opinion, by which this difficulty can be met, and a remedy found for our unpreparedness for war on a large scale, and that is by the adoption of a system of universal training. It should begin with the boys at school and be carried on several consecutive months after they have reached an age when they would be capable of taking their share in the defence of the Empire.

And now, gentlemen, before I conclude, it may be useful to dwell for a few minutes on a consideration of our position amongst the nations of the world, and what that position involves.

We rule over the greatest Empire the world has ever seen, and we hold sway over many alien races. This is a wonderful and glorious position, but, gentlemen, it entails heavy responsibilities. Six years ago we were rudely awakened to a sense of these great responsibilities. It was suddenly realised that a portion of the Empire was in danger, and that unless volunteers came forward in considerable numbers, our necessarily small Army could not possibly carry the war to a successful conclusion. A number did come forward, both from Great and Greater Britain, and in the end we won the day.

But the end was far too long in coming, and the expenditure was enormous, infinitely greater than it would have been had the country been properly prepared. And, gentlemen, I would remind you that we were fighting a nation of farmers; what then would have been the result had we been opposed to trained Armies?

Gentlemen, I have the highest admiration for the men who offered their services in the hour of their country's need, and much gratitude for the valuable aid rendered by those amongst them who had, in time of peace, intelligently prepared themselves for some such struggle. But, unfortunately, many of those who came forward had

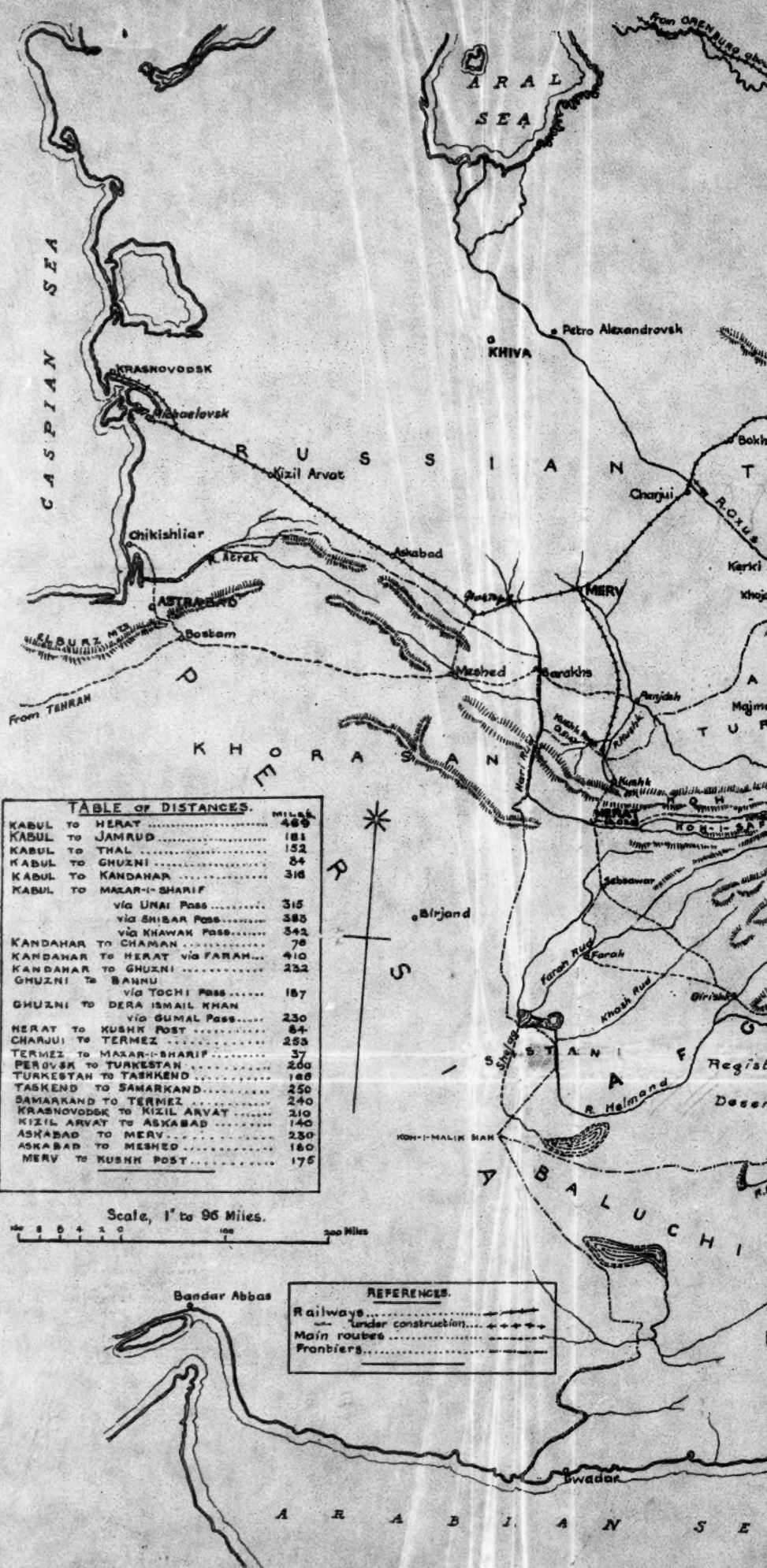
never received any military instruction at all, and they had no idea even how to handle a rifle. They had to be taught; but instruction at such a time could only be perfunctory, and no one can, I think, deny the fact that had the men of the Empire earlier realised their responsibilities, and submitted themselves as a whole to a training in arms, the value as fighting machines of those who did come forward would have been increased a thousand-fold. They could have been sent into the field with little or no delay, and much valuable time and money would have been saved.

Gentlemen, I am an old soldier of more than 50 years' service, and many of you are young and vigorous men, on the threshold of your careers, with, perhaps, long lives before you, and you may have opportunities of doing grand work for your country. What I would most earnestly impress upon you this afternoon is, that those who love their country, and would secure for it the blessings of peace, must do all in their power, even if it entails some self-sacrifice, to be prepared in all points to resist attack!

Remember, gentlemen, that when a strong man armed keepeth his palace, his goods are in peace. There is no "militarism" and no "jingoism" in a man's being prepared to defend his country. There is no infringement of the rights of a free man to ask him to fit himself for that defence, and there is not a man, whatever his position in life may be, who would not be the gainer physically and morally for a training in arms.

It is painful to notice how little is done to imbue the youths of this land with the true feeling of patriotism, and to hear Englishmen talk, as a Japanese writer has remarked, so much of their rights and so very little of their duties.

Many of you, no doubt, will come to occupy positions with regard to your fellow-countrymen, in which both by your words and actions you may do a great deal towards the fostering of a true spirit of patriotism. I earnestly hope you will make use of such opportunities as may be given you to this end. In all parts of the world the men of our race have shown that they possessed great qualities, let us endeavour to prove that these qualities are still with us—as, indeed, I firmly believe they are—though we run the risk, in the selfish rush and stir of modern life, of losing them, unless we are determined to be true to ourselves and to our country, and to have the courage to fulfil the responsibilities that have been thrust upon us as members of a Great Empire.





WEST FRONTIER OF INDIA,
RUSSIAN TURKESTAN.



THE TRUE COST OF THE VOLUNTARY SYSTEM FOR EVERY BRANCH OF OUR MILITARY FORCES.

By GEORGE F. SHEE, M.A.

Tuesday, 20th June, 1905.

Colonel the Lord RAGLAN, Commanding the Royal Monmouthshire
Royal Engineers (Militia), in the Chair.

"I wish to plead for your several and future consideration of this one truth, that the notion of Discipline and Interference lies at the very root of all human progress or power; that the 'let-alone' principle is, in all things which man has to do with, the principle of death. . . . and that therefore it is only in the concession of some great principle of restraint and interference in national action that we can ever hope to find the secret of protection against national degradation."—*Ruskin*.

"It is apparent from the figures which appear in the annual Estimates, that this Army, imperfectly prepared, wasteful in its methods, and unsatisfactory in its results, is one of the most costly machines ever devised."—*The Rt. Hon. H. O. Arnold-Forster, Secretary of State for War. Memorandum on the Army Estimates, 1904.*

FOR the second time your Council has done me the honour of inviting me to address you on a matter of national importance. Three years and a half ago, I had the privilege of giving a lecture in this theatre on the "Advantages of Compulsory Service." To-day I propose to deal with the "True Cost of the Voluntary System." When I spoke here three years ago, the question of adopting the modern, just, and truly democratic system of universal military service or training (the *principle* is the same in both cases, and both are as different from conscription as level justice is from lynch law), this question was still regarded as quite an academic one, entirely outside the range of practical politics, and rather a matter for the student or political thinker than for the man of business, or even for the practical soldier or sailor. Well, gentlemen, a good deal of water has flowed under London Bridge since then, and I fancy that it has carried with it some of the incrustation of age-long prejudice, some of the ignorance which has stood, and still stands, in the way of the acceptance of a very simple truth that, to quote the words of an historic report, "it is the duty of every citizen of military age and sound physique to be trained for the national defence, and to take part in it should emergency arise." There may be some indeed, who think that the progress of the idea which I ventured to place before you three years ago, has not been as rapid as they would have wished. The weary traveller, toiling up the mountain side in the hot glare of the sun, and finding neither running water to slake his thirst nor tree to give him shade, is apt to think that he is making very little progress indeed. It is only when he reaches some

point from which he gets a clear view of the distant spot from which he started that he realises with joy how far he has got on his way, and is encouraged to push on steadily to his goal. We experience much the same in tracing the growth of an idea. There have, no doubt, been times when those who have been earnestly working for the great idea of national service have felt inclined to lose hope, discouraged by the dead weight of national apathy, and by the utter absence of courageous leadership on the part of those whose position and influence would make it so easy to transform that apathy into earnest effort, that indifference into enthusiasm and co-operation. Not satisfied with refusing to help, such men have too often stooped to win a cheap applause by the repetition of those insincere platitudes—so transparently false that they hardly raise a cheer even from the groundlings—to the effect that the freeborn Briton “will never stand” any system which would oblige him to fulfil the primary duty of citizenship (a duty recognised and fulfilled by every modern nation in the world, except the United States), and that there is something particularly noble and inspiring in the idea of paying other men to defend your country, or allowing still others to attempt to fulfil in their own persons a duty that can only be properly carried out if shared by all.

These, I say, are not encouraging features. But if we glance back to where we were three and a half years ago, I think you will agree with me that the progress of the idea of national service has not been unsatisfactory if all the circumstances are taken into account. Let me recall to your minds a few of the facts which may be taken to counter-balance the unfavourable elements I have referred to. In the first place the National Service League has been founded, and is steadily, though too slowly, gaining ground in its educative work among the British people, and it is particularly gratifying to note that some of those who were my opponents three and a half years ago have since become active members of the League, a circumstance which is as strong a tribute to their generosity of mind and public spirit as it is to the truth of the principle which the League represents. Then came the Report of the Royal Commission on the South African War. There is one passage which stands out most significantly in that report. It is that in which it is stated that “The true lesson of the War is, that no military system will be satisfactory which does not contain powers of expansion outside the limits of the Regular Forces of the Crown, whatever that limit may be.” But the Report contained a further contribution of the greatest weight in the shape of the special Memorandum signed by Sir George Taubman-Goldie, a man of wide experience, both as an administrator of great British territories, and as a practical business man. The conclusion he came to, after the most careful study of the whole evidence which was submitted to the Royal Commission, is so important that I make no apology for recalling it to your notice. Speaking of the lessons of the War, he said, that “the second and far more serious defect in our military preparations for the war was in not having a sufficient number of trained men to furnish (by voluntary effort in a national emergency) the large reinforcements demanded both by the wastage of war, and by the vast area of the operations.” And, referring to the want of a system of national military training, he stated that “This particular defect in our military organisation has cost the country no less than a hundred millions sterling; that it was a

principal indirect cause of the outbreak of war; that for some months it left the United Kingdom practically denuded of trained soldiers; and that it produced the most perilous international situation in which the Empire has found itself since the days of Napoleon. Only an extraordinary combination of fortunate circumstances, external and internal, saved the Empire during the early months of 1900, and there is no reason to expect a repetition of such fortune if, as appears probable, the next national emergency finds us still discussing our preparations."

It will be seen that Sir George Goldie, while indicating the nature of the gravity of the disease, pointed to national military training as the only real remedy, a conclusion with which Lord Esher, Sir Frederick Darley, and Sir John Edge declared themselves in accord. In my humble opinion, the nation is deeply indebted to Sir George Taubman-Goldie, as the first Englishman, occupying a prominent position, who laid before the country in a clear and authoritative statement, the true road to reform and national efficiency. The Report of Lord Elgin's Commission was followed, last year, by the Report of the Duke of Norfolk's Commission on the Militia and Volunteers. It is hardly necessary to remind this audience of the nature of the task entrusted to the Commissioners, or of the fact that the great majority of its members had been in the past, or were at that time, officers of the forces into the efficiency of which they were asked to inquire. And, in view of the misrepresentation to which the Commission was subjected on the issue of its Report, it may not be out of place to say here that I have the highest authority for stating that, with possibly one exception, no Member of the Commission approached his task with the slightest prejudice in favour of compulsory training; the direct contrary was, in fact, the case.

The question put to them was "Whether any, and if any, what changes are required in order to secure that these forces" (i.e., the Militia and Volunteers), "shall be maintained in a condition of military efficiency, and at an adequate strength?" To which they replied, "We humbly submit as the answer, to which, after a protracted enquiry, our most earnest consideration compels us to subscribe, that Your Majesty's Militia and Volunteer Forces have not at present either the strength or the military efficiency required to enable them to fulfil the functions for which they exist; that their military efficiency would be much increased by the adoption of the measures set forth in the fourth section in this Report, which would make them valuable auxiliaries to the Regular Army; but that a home defence Army, capable, in the absence of the whole or the greater portion of the Regular Forces, of protecting this country against invasion, can be raised and maintained only on the principle that it is the duty of every citizen of military age and sound physique to be trained for the national defence, and to take part in it should emergency arise."

No one who has taken the trouble to read the evidence given before this Commission can fail to realise that the voluntary system, as applied to what should be the *national* forces, has been, is, and always will be a failure, simply because of its inherent weakness. And though the abuse and the grossly unfair criticism with which this courageous utterance of the truth was greeted by a large section of the Press are calculated to sadden the thoughtful observer, there can be no doubt that the courage and public spirit of the Com-

missioners has had an effect on public opinion, which will bear fruit in the future. *Magna est veritas et praevalabit.*

Another Report which incidentally gave the strongest confirmation to the proposal that a national basis should be laid for the recruitment of our forces was that of the Inter-departmental Committee on Physical Deterioration. I think that when national service has been adopted in this country, and has come to be part and parcel of the mental atmosphere of the ordinary citizen, people will look back in amazement at finding that a business-like nation, such as we claim to be, could have listened calmly to some of the passages in this Report, and have then proceeded to sing the usual pæans as to the glorious voluntary system. We have, for instance, the Committee declaring that "the examination of the official representatives of the recruiting system left upon the minds of the Committee the conviction, confirmed as it was by the evidence of other witnesses, that it would be as reasonable to argue from criminal statistics to the morals of the great mass of the people, as it would be to argue to their physical conditions from the feeble specimens that come under the notice of recruiting officers." And shortly after this unconsciously cynical admission as to the real nature of the boasted voluntary system, we find Sir Ian Hamilton, fresh from witnessing the achievements of the Japanese Army, writing to the Secretary of State for War:—"This War has burnt into my mind, in a way nothing else could have done, that the condition of our Army constitutes a terrible danger to the existence of our Empire. I have learnt here that nothing but the very best will do, and we too often have the worst."

These are some of the symptoms which show that the truth is gradually making its way, in spite of the enormous obstacles raised by prejudice, by ignorance, by cant, and by personal interest. But notwithstanding all that has happened to undermine the lath and plaster wall of the voluntary system, which has been painted to look like marble, tradition and ignorance die hard, and there is no doubt that a very large majority of the people of this country have a vague idea that the voluntary system is, on the whole, a cheaper system than that of universal service in any shape or form. It is true that most people are aware that we do actually pay more per head for our soldiers than do such nations as Germany, France, Austria, Italy, Japan, or Russia. But the man in the street comforts himself with the reflection that on the one hand we get really genuine professional soldiers and a large number of splendid Volunteers, all very superior to the foreign article; and that on the other hand we avoid that dreadful interference with trade and industry which other nations submit to and which means, according to this argument, a terrible loss to the country in productive power and the accumulation of capital.

Now I hope to-day to prove that not only is our system enormously costly in actual hard cash—far more costly than any but a very few experts are aware of—but that we do not get any adequate value for our money, and that, by blind adherence to an obsolete system, we are losing so much in that power of organisation for national efficiency which national service confers that, if it were not needed on military and naval grounds, it would be the highest wisdom of clear-sighted statesmanship to adopt it for the good of the commonwealth.

But before plunging in *medias res* I must say a word in explanation of my whole attitude in this matter in order to guard against misunderstanding, though I confess that my experience of the difficulty of making oneself clearly understood does not lead me to hope that

I shall be altogether successful. You will notice that the title of my lecture is a somewhat cumbersome one, and some of you may have wondered why I did not merely call it: "The True Cost of the Voluntary System." The reason is this: I wanted to make it clear from the first that I am not attacking the voluntary system as applied to our Regular Army. I may perhaps claim to have studied the subject sufficiently to be aware of what every schoolboy knows, that our Regular Forces, those which are maintained in time of peace to garrison and police our Empire, and to form the spear-head of the lance which should represent the armed strength of the nation, that these forces can only be recruited on the voluntary system, simply because instead of being required for the defence of the mother country, as the National Armies of other countries are, they are primarily and essentially intended to fight, or to keep the *Pax Britannica*, abroad. What I am attacking is the mistake that has been made in extending a principle which is legitimate in the case of professional forces to what I may call, broadly, the National Militia—the force which represents the nation armed in its own defence, and thereby, incidentally and automatically, endowed with the power of expanding the professional Regular Forces in time of war. This departure from a principle which has been the foundation and the guarantee of national greatness in the past, and which is at the root of the national strength and efficiency of all those modern nations which have adopted or revived it; this departure I conceive to be unwise in itself and highly detrimental in its results.

One more remark and I shall have finished this long preamble, which must I fear tempt some of you to call out to me, with the judge in the old French play: "*Venons au deluge.*" Though I have said that I do not attack the voluntary system as applied to the Regular Army, you will presently find me using facts as regards the costliness and the waste in that Army as illustrations of my indictment of the voluntary system as extended to the whole of our national forces. Is there anything illogical in that proceeding? Certainly not; for my point is that, though the Regular Army must be voluntarily recruited, and therefore costly, a large part of its costliness and inefficiency is *absolutely due to the fact that it is not founded on a system of national training*, but on recruitment from what has been recently called (see the Report of the Inter-departmental Committee Physical Deterioration) "the residuum of the population." In other words, though I would not for a moment propose that our Regular Army should be recruited by compulsory service, I absolutely deny that the adoption of universal military training would be of no use to the Regular Army, and would therefore have no military as distinct from national advantages, as has frequently been urged even by some competent authorities such as Sir J. Colomb. So far am I from admitting such a proposition that I contend that with the progress of industrial life and the concomitant decay of the national military spirit, the cost of our Regular Forces will grow in the same ratio as their military value diminishes, unless by the adoption of national service the basis of their recruitment—the seminary of our soldiers—becomes truly national. In other words, paradoxical as it may sound, the plain truth is that *we cannot in the long run maintain our voluntary professional forces unless we base them ultimately upon national forces trained compulsorily.*

A.

WHAT WE PAY.

1. Taking the Army Estimates for 1904-05, and supposing that the establishment of 227,000 men voted is obtained—an almost unheard of event—we find that the gross Army Estimates were £32,370,000. On this basis the cost per head, reckoning all British troops actually serving in the Home and Colonial Army, was £142: 12s.

2. But in order to get at the real cost of our military forces we must of course, as in the case of all foreign Armies, include the Military Works Vote; this was, for 1904-05, £3,600,000, giving £35,970,000 as the total, or a cost per head of £158: 8s. Sir Alfred Turner gives the total cost of the Army, including Supplementary Estimates, as £46,800,000 in 1904-5. It will be seen, therefore, that my calculations are on the most favourable basis, since I am taking the total cost at ten millions sterling less than he has placed it.

3. I have so far of course calculated on the only possible method by which we can compare the cost of our Army with that of foreign nations, namely, the cost of “the number of men kept continually under arms”; in other words, the permanent military forces. This of course excludes the Reserves, Militia, Yeomanry, and Volunteers, just as it excludes the vast fully-trained Reserves in the case of other Powers. If we deduct the cost of the Militia, Yeomanry, and Volunteers and the Military Works Vote, we find that the Estimates for the Home and Colonial Troops were £29,852,000, giving a cost per head of £131: 10s.

4. If we include the cost of British and native troops in India (£19,000,000) and the Military Works Bill we get 442,000 Regular Troops costing £54,971,649, giving a cost per head of £124: 6s.; or, excluding the Military Works Bill, 442,000 Regular Troops costing £51,371,649, or £115 per head.

5. Finally, in order to give every possible basis of calculation, the Army Estimates, including Military Works Vote, but *excluding* the cost of the Auxiliary Forces, were £33,452,000, giving as the cost per head, £147.

We find therefore that the cost per head of our Regular Army (excluding India) is, on the lowest basis, £131: 10s., and on the higher, £158: 8s. These figures are very high, though I may remark that they are small in comparison to the cost per head of the United States Army—the most expensive in the world. But just because the cost of the Regular soldier is very high, I wish at once to enter an emphatic protest against the absurd comparisons that are constantly being made, both in Parliament and on the platform, between the cost of the Regular soldier and the cost per head of the Militiaman, Yeoman, or Volunteer. For instance, it has been repeated *ad nauseam* that while the Regular soldier costs £94: 19s.: 1d., the Militiaman £20: 11s.: 8d., the Yeoman £22: 5s.: 8d., the Volunteer costs only £7!¹ Whereupon the speaker generally proceeds to ask, amid thunders of applause from an ignorant public, whether the Regular soldier is really worth thirteen Volunteers or nearly five Militiamen or Yeomen, and urges that if any reduction is made in our military

¹ I greatly regret to see that Sir Alfred Turner has again fed a gullible public with this utterly fallacious comparison.

forces it should be in the costly Regulars, not in the Volunteers, "the cheapest force in the world." I confess that when I hear such arguments as this I do not know whether to be more amazed at the men who use them—most of whom ought to know better—or at the way in which they are swallowed by the public.

It is only an instance of the extraordinary looseness of thought which prevails in all matters connected with the question of national defence, a looseness of thought which is actually fostered and encouraged by a certain type of popularity-hunting politicians. A moment's reflection will, of course, show that you might as well compare the cost of hiring a motor for a week with the annual cost of keeping a carriage. If anyone were to tell an audience as a result of such an argument that obviously a motor was far cheaper than a carriage, or that a carriage costs thirteen times as much as a motor, it is probable that some gentleman at the back of the hall would suggest to the speaker that he should make a short stay at Hanwell or some such restful spot.

The Regular soldier serves all the year round, while *none* of the other categories mentioned serve continuously, and, as regards the Volunteers, a considerable number do not serve as long as a week continuously. If we compare the cost on the only possible real basis, *the actual time of service*, we find that:—

1. The Regular costs, including the cost of the permanent staff of the Auxiliary Forces, £131: 10s. for 365 days, or 7s. 8½d. a day. Or, if we add the cost of Military Works, part of which is certainly due to Militia and Yeomanry, the Regular costs £147: 6s. for 365 days, or 8s. a day.
2. 103,000 Militiamen cost £817,000. Cost per head, £7: 18s. for 28 days = 5s. 7d. a day = £102 a year. If we distribute the first training at the depôt over the six years' annual training, we might take the cost as, roughly, 5s. a day, or £91 a year.
3. 38,000 Yeomen cost £468,000. Cost per head £16 for 18 days = 15s. 6d. a day = £277: 16s. a year.
4. As regards the Volunteers, it is very difficult to ascertain the average number of complete days' service given by the individual. But, taking it that the number of hours' drill amount to 4 days a year continuous training, and that 50 per cent. of the Force do 6 days in camp in alternate years, *i.e.*, each Volunteer an average of 3 days in each year, we get 7 days as the *average* equivalent of continuous service performed by each Volunteer. 240,000 Volunteers (including all "enrolled," not necessarily "efficient") cost £1,220,000. Cost per head £5 for 7 days = 14s. 3½d. a day = £250: 10s. a year.

If only those present at the Annual Inspection (198,000 in 1903-4) were reckoned as "efficients," the cost per head would be £6: 7s.: 3d., or 18s. 2d. a day = £339 10s. a year. On the other hand, if, as has been sometimes claimed, the *average* equivalent service given by the Volunteers amounts to 14 days' continuous training, we get the annual cost per head as only £125: 5s. a year,

To sum up this matter of the comparative cost of the different categories of our forces on the same basis:—

The Regular costs	£131: 10s.	or	£147: 6s. a year.
The Militiaman costs	£102	or	£91 „
The Yeoman costs	£277: 16s.	a year.	
The Volunteer costs from £250: 10s. to £125: 5s., let us say, £187: 17s. a year.			

I now give a comparative table showing the cost per head of the chief Armies of the world. I have, of course, taken precisely the same basis in each case, namely, the total effective peace-footing of the permanent military forces divided into the total Army Estimates, including, in all cases, all military expenditure of every kind, fortifications, military schools, pensions, etc. And, as the national debts of these countries have been almost entirely incurred in war, and the debt charge per head must be regarded as a definite burden on the people, I have added the total debt per head of population and the annual charge of the same per head in each case. This is the more necessary, as I shall, of course, be told by some people that it is impossible to compare the cost of our Army with that of foreign nations, since it is impossible to calculate “the fearful loss of the industries of those countries which results from the burden of compulsory service and the withdrawal of labour from productive employment,” etc.—you know the phraseology. Well, for the present I must content myself with stating the actual facts in pounds, shillings, and pence, which is one of my chief objects in this paper. I shall recur to this oft repeated statement later, merely remarking for the present that it must be rather worrying for those who use this argument to find how these “poor” countries, especially those which have universal service in its strictest form, manage to jog along, doing indifferently well, even where they come into close competition with us, who, being the proud retainers of the voluntary system, do nothing “to interfere with productive labour.”

The following figures are based on the Statesman's Yearbook for 1905, and, as regards Germany, on the *Statistisches Jahrbuch für das Deutsche Reich* for 1904:—

—	Cost per Head.	Debt per Head.	Debt Charge per Head.
	£ s. d.	£ s. d.	£ s. d.
Great Britain.. ..	158 8 0	18 10 5	0 12 7
Germany	51 2 0	2 12 2	0 1 10
France	45 0 0	31 3 8	1 5 0
Russia	35 0 0	5 9 9	0 4 9
Austria-Hungary ¹ ..	32 0 0	5 1 3	0 5 7
Italy	42 0 0	15 3 10	0 13 10
Japan (1900-1) ² ..	6 0 4	1 4 2	0 1 8

¹ £55 if the whole of the extraordinary expenditure for the year is included, and the common Army only is taken as the divisor; if the Landwehr and Hungarian Honvéd are included in the divisor, the cost is £41 per head.

² Dividing the peace footing (the latest obtainable) into the total ordinary Army Estimates for 1904-5.

It may be of interest to give at the same time the cost of the chief Navies of the world in 1903 (the latest obtainable for all the countries in question):—

Great Britain (incl. Naval Works)	...	£39,019,232
Great Britain (excl. Naval Works)	...	£35,525,732
British Empire (incl. Naval Works)	...	£39,858,230
British Empire (excl. Naval Works)	...	£36,261,730
Germany	... ..	£10,250,000
France	... ..	£12,500,000
United States	... ..	£16,750,000
Russia	... ..	£12,250,000
Italy	... ..	£2,850,000
Japan	... ..	£12,250,000

B.

WHAT WE GET.

1. The Voluntary system, as far as the Regular Army is concerned, has never given us the numbers voted by Parliament, except in time of reduction following upon a great war, nor has it given us material physically, morally, and mentally representative of the standard of the race. My subject is too large for me to be able to give all the figures that I have at hand in proof of this statement, the truth of which anyone will admit who has given the slightest attention to the matter. I may, however, state broadly that when there has been considerable demand for recruits, either bounties have been offered or the physical standard has been lowered. This rule has been invariably followed for the last 200 years. Writing in 1875, Captain (now Colonel) Hime, said, "from 1715 to 1867 it was found necessary from time to time, to offer a bounty, in order to induce men to enroll themselves in our Voluntary Army. In 1745, the bounty for the Guards was £6. . . . In 1775, the bounty was £3, and Militia Volunteers for the Line received £6 in 1802. The bounty for the ordinary recruit in 1803 was £16. In 1855, the bounty was £8 for the Infantry, £9 for the Marines, and £10 for the Artillery. Bounties continued to be given, at varying rates, until 1867, when they were abolished; but I have no hesitation in saying, that with our present system of recruiting, it would be necessary to revive them if we become involved in a great war." I need hardly remind you, that this prediction was fully verified during the South African war, though whether, in the light of subsequent events, that can be termed "a great war," I must leave you to judge. A bounty of £22 was offered to men of the Reserve Battalions, who only engaged to serve in this country for one year, and a bounty of £10 was for a considerable period offered to recruits for the Militia. At the same time, the physical standard was reduced to such an extent that a circular was issued to medical officers allowing them to enlist men as low as 5 feet in height. As regards numbers, I may mention briefly, that the deficiency in the Regular Army between the numbers voted by Parliament and those obtained has been at various periods:—

In 1805	-	-	-	-	-	25,000
1806	-	-	-	-	-	25,000
1814	-	-	-	-	-	32,000
1828	-	-	-	-	-	8,000
1831	-	-	-	-	-	7,500
1871	-	-	-	-	-	9,000
1898	-	-	-	-	-	13,500
1900	-	-	-	-	(about)	30,000

2. The Voluntary System has generally failed to supply sufficient men fit for the duties of war. As a direct result of our purely voluntary system of enlistment we are obliged to take immature boys of eighteen or under, while no other nation in the world enlists its soldiers under twenty, and most of them require the recruit to have completed his twenty-first year. In the discussion, 12th November, 1897, at this Institution, on the Military Prize Essay of that year, Colonel Graves (Commanding 83rd Regimental District) said: "Whenever an addition is to be made to our Army, we are compelled to go below the ordinary standard of physical capacity which has been recognised as necessary for soldiers. We have got to take the knock-kneed, bottle-shouldered, and miserable weeds out of the gutter." Writing to the *Morning Post* in 1884, the late Sir Edward Sullivan said: "Our recruits are notoriously so young, so immature, so puny, that often a couple of years' careful feeding and nursing are absolutely necessary to enable them to bear the ordinary fatigue and exposures of a soldier's life in time of peace." In his "Military Hygiene," Professor Parkes stated that he regarded the recruit of eighteen as unfit to fulfil "the heavy duties of peace." When my noble Chairman's grandfather was told during the Crimean War that 2,000 recruits were ready to send to him, he replied that "those last sent were so young and unformed that they fell victims to disease, and were swept away like flies; he preferred to wait." General Sir William Codrington, speaking as Chairman at the discussion on Captain Hime's Essay, above referred to, said: "During the Indian Mutiny, I remember reading of men who were sent out and were at once put into hospital, and out of a detachment perhaps of seventy, one-third would come back, never having done a day's real soldiering." During the South African War many of the later Imperial Yeomanry had to be sent home by Lord Kitchener as quite unfit for any military duties whatever; while other large numbers could not be regarded as anything but what Sir John Burgoyne described as "a vast number of recruits," since Lord Kitchener could make no use of them until they had had several months' training in riding and shooting.

In giving the following figures, I should like to take the opportunity of expressing my great regret, which will be shared by all serious students of the subject, that the statistics as to the Ages, Heights, and Chest Measurements of men serving in the Army, which were regularly published till 1898, should have been discontinued since then. The change is of the greatest disadvantage to anyone wishing to establish accurate comparisons between the physical standard of the past and the present, and in view of the fact that the Commission on Physical Deterioration deplored the absence of national statistics on the subject it is truly extraordinary that we should have been deprived of this one regular service of information. The matter is all the more surprising as the same amount of space as formerly is allotted to the statistics with regard to horses and mules.

The tendency is towards a continuous increase in the proportion of young recruits. The proportion per thousand under 17 was:—

In 1871	-	-	-	-	18.1
1898	-	-	-	-	37
1903	-	-	-	-	49.4

The proportion of recruits under 21 and over 40 (the latter category is of course a very small one) was:—

In 1873	-	-	-	-	28
1898	-	-	-	-	46
1903	-	-	-	-	76.9

Similarly the height, weight, and chest measurements have steadily deteriorated in the past thirty or forty years.

Men serving in the Army under 5 feet 5 inches:—

In 1889	-	-	-	-	106 per thousand
1890	-	-	-	-	115 „ „
1891	-	-	-	-	117 „ „
1898	-	-	-	-	132 „ „
1902	-	-	-	-	172 „ „

The proportion of recruits finally approved under 5 feet 3 inches in:—

1900	-	-	-	-	79.6 per thousand
1901	-	-	-	-	93.0 „ „
1902	-	-	-	-	125.5 „ „

Munson in his "Military Hygiene" tells us that "good weight or height is of even more importance than an ample chest measurement."

The following is the proportion of men in the Army weighing under 8 stone 8 lbs.:—

In 1871	-	-	-	-	159.4 per thousand
1872	-	-	-	-	174.4 „ „
1898	-	-	-	-	269 „ „
1900	-	-	-	-	301 „ „
1901	-	-	-	-	325 „ „
1902	-	-	-	-	364.2 „ „

In 1900, 44.2 per 1,000 of the recruits accepted weighed under 7 st. 12 lbs.

„ 1901, 58.9	„	„	„	„	„
„ 1900, 25.5	„	„	„	7 st.	2 lbs.
„ 1901, 32.8	„	„	„	„	„

When we remember that the average German recruit examined by Dr. Fetzer in 1877 weighed 10 stone 3.3 lbs., and that he gave it as his opinion that no recruit should be accepted weighing less than 9 stone 6 lbs., it is truly appalling that over 36 per cent. of our recruits should weigh under 8 stone 8 lbs., and an appreciable proportion should turn the scale at 7 stone 12 lbs. and 7 stone 2 lbs. In view of the physical standard accepted for our Army, the fact that the rejections for physical unfitness in Manchester in March of this year average 91 per cent. of those presenting themselves for service makes one wonder how anybody can have the face to refer in terms of pride to the voluntary system as practised by our Imperial Race.

Chest Measurement.

The proportion of recruits finally accepted for service and having a chest measurement under 33 inches was:—

In 1900	-	-	-	-	193·2	per thousand
1901	-	-	-	-	219·2	„ „
1902	-	-	-	-	218·9	„ „
1903	-	-	-	-	306·6	„ „

The average recruit of 1900, according to the Army Medical Returns, was nearly twenty years of age, but he was two inches shorter, one inch narrower in the chest, and fifteen pounds lighter than the ordinary youth of nineteen, according to the measurements of the Anthropometrical Committee of the British Association taken in 1883; and he was one inch shorter, a fraction narrower in the chest, and six pounds lighter than the average boy of *seventeen*, according to the same measurements.

It is not surprising that when such “men” are subjected to what Dr. Parkes called “the heavy duties of peace,” we get an enormous wastage from sickness, amounting to nearly 117,000 men for the ten years—1890 to 1899—who were officially classed as “constantly non-effective from sickness,” giving a ratio of 59·15 per thousand of the aggregate strength in those years. In estimating the cost per head of the British soldier I have made no allowance, be it noted, for the enormous wastage which occurs in this way; but it is obvious that the wastage from death, desertion, disease, prison, etc., including the added expense of frequent drafts to India owing to the poor physique of the men sent out, could not amount to less than £1,000,000 a year, which would add another 5s. 6d. per head to the cost of the British soldier. The following comparison is interesting as showing the proportion of men per thousand “constantly non-effective from sickness” in 1900 in the Home Army and in the German Army respectively.

Rate per thousand of men “constantly non-effective from sickness” in 1900:—

United Kingdom (Home Army only)	-	-	-	-	34·85
Germany	-	-	-	-	10·6
Death Rate: United Kingdom (Home Army only)	-	-	-	-	6·62 ¹
Germany	-	-	-	-	2·4

But it is when this material is subjected to the strain of war that it is really thoroughly tested, and I do not think that the figures I am about to give can be sufficiently widely known. I consider that they should be written in letters of fire over our churches, our chapels, and our schools—it might prevent a little of the canting twaddle about the glory of our Voluntary System. The figures show the proportion of deaths from disease in the Franco-Prussian War, and in the South African War respectively, and it will be remembered that the South African climate is a very healthy one, and that the progress in military hygiene and sanitation has been enormous in the last thirty-five years.

¹ I am glad to find from the Report of the Army Medical Department just issued that the death rate for the Home Army dropped to 3·41 in 1903; but the rate of “constantly non-effective from sickness” was a little higher than in 1900, being 35·2 per thousand.

The proportion of men who died from disease to the total number of deaths were:—

Franco-Prussian War	-	-	-	35.5 per cent.
South African War	-	-	-	62.6 per cent.

Of the deaths which occurred in hospital the proportion due to disease (not to wounds) was:—

Franco-Prussian War	-	-	-	59.3 per cent.
South African War	-	-	-	87.0 per cent.

What do these figures mean? They mean that while we send to battle for us men drawn mainly from the proletariat, with a boyhood and early manhood too often spent in the slums of our great cities, and constitutions undermined by foul air and bad food, the German and the Japanese forces represent the average manhood of the race, called to arms after the body and the mind have been developed by training in physique, *moral*, and the spirit of practical patriotism.

I cannot go fully into the question of the *moral* of the men upon whom we cast the main burden of our Imperial Defence. To those who know how small have been their opportunities for previous healthful development of body and mind, there is something infinitely pathetic in the fact that as a whole they bear themselves so well, cheerfully facing death and disease, and following their officers into the jaws of hell with a certain happy-go-lucky, unconscious heroism that is full of good augury for the fighting qualities of the race. But it would be sheer cant to pretend that our system gives us men morally and mentally representative of the nation's manhood. I see that in 1903, 62 recruits who had been finally approved for service were discharged for weakness of intellect within three months of enlistment—a sinister phenomenon which cannot be found in any other Army in the world. It is significant, too, that in Liverpool the favourite beat of the recruiting sergeant is just outside the police station. Space will not permit me to deal with the whole subject. But I think the following figures provide a significant indication of the enormous wastage which is inevitably connected with the recruitment of our Regular Forces solely from the poorest and least efficient section of the population, a fact which is again entirely due to the circumstances that in the absence of a system of universal military training there is no truly national basis for our military forces. The following figures are official for 1904:—

Died	-	-	-	-	-	-	-	3,896
Deserted	-	-	-	-	-	-	-	7,162
Invalided	-	-	-	-	-	-	-	8,869
Discharged for misconduct	-	-	-	-	-	-	-	2,903
Discharged as not likely to become efficient	-	-	-	-	-	-	-	1,653
Imprisoned (excl. India)								
Central Military Prisons	-	-	-	-	-	-	-	15,492
Branch	-	-	-	-	-	-	-	6,451

With regard to the Auxiliary Forces, I do not propose to go fully into figures, as it would take up too much space and time. But it is an admitted fact that the physical standard of the Militia and the Volunteers is, as a whole, far below that of the Regular Army, while probably at the present moment the physical standard of the

Yeomanry is considerably above it, a fact easily explained by the extremely favourable conditions offered in that force.

3. *Efficiency.* Though Goethe has told us that figures are best adapted to prove anything, I think we all realise that the actual test of a system is its efficiency in peace and war. It would be ridiculous for a civilian to attempt to give an opinion on such a matter, and I shall certainly not attempt to do so. The efficiency of our military forces has, however, been dealt with in three Reports, to which I need here only refer. Lord Elgin's Commission on the War in South Africa showed that the condition of our Army was full of peril to the Empire, that our forces lacked the power of expansion in time of war, that the Army had to shed an enormous proportion of its so-called "effectives" on the outbreak of war because they were absolutely useless for that purpose; that in stores, arms, ammunition, supplies, commissariat, intelligence, in fact, in everything which preparation for war implies, our whole glorious Voluntary System was a dismal failure. And in the last few days the Report of the Butler Committee has revealed a state of things so deplorable that it would be the final condemnation of a system by which the Army and the whole question of national defence is divorced from the interests of the people, if we possessed anything of the logical directness of thought of the Germans, the French, or the Japanese.

As regards the Auxiliary Forces, the Report of the Duke of Norfolk's Commission is still fresh in your minds, and I need only recall to you three or four of its most salient passages:—

"We are forced to the conclusion that the Militia, in its existing condition, is unfit to take the field for the defence of this country."

"We are agreed in the conclusion that the Volunteer Force, in view of the unequal military education of the officers, the limited training of the men, and the defects of equipment and organisation, is not qualified to take the field against a Regular Army."

"If the purpose is to produce a force which, without substantial help from the Regular Army, can be relied upon to defeat an invader, then improvements in the Militia and Volunteer Force will not be sufficient."

These are the sober judgments of a body of men, especially qualified to deal with the subject entrusted to them by the King, and I do not think it would be easy to find a more complete condemnation of the Voluntary System as applied to what should be our national forces than these simple sentences. To anyone who has studied the evidence given before this Commission as to the military qualities of our Auxiliary Forces, whether from the point of view of discipline, physique, length, and nature of training of officers and men, opportunity for combined field movements, transport, commissariat, interference with employment, etc., it is astounding that patriotic men can be found, as is unfortunately the case, who, apparently in all seriousness, maintain that by encouragement, sympathy, elasticity, payment in camp, abolition of irksome rules and regulations, and such-like methods, these heterogeneous forces can be made into anything like an efficient national force, without the adoption of the one principle which can vivify and recreate this mass of men with arms, and transform them into a great manifestation of national strength and organisation. The fact that so large a number of distinguished Volunteer officers are members of the National Service League is,

perhaps, the best proof that such men realise the futility of these other makeshifts unless they be accompanied by the adoption of the universal obligation to undergo a training in arms.

C.

WHAT WE LOSE.

So far, I have tried to deal with some of the main aspects of the actual cost to the country of our blind adherence to the purely Voluntary System of recruitment, and of the wastage directly incurred. But it is when we turn to the indirect loss, due to the fact that the nation, as a whole, is not organised by a national system of discipline and training, that we can best realise the extraordinary folly of our behaviour. This, the most important part of my subject, would demand the pen of a Burke, or the eloquence of a Demosthenes, to do it justice. Possessing neither the one nor the other, I cannot do more than touch upon the main points here:—

1. *Physique*.—Lord Beaconsfield has said, that "The health of the people is really the foundation upon which all their happiness and all their power, as a nation, depend. . . . the health of the people is therefore, in my opinion, the first duty of a statesman." Yet there is probably no civilised nation in the world at the present moment, which, in spite of much shouting about sport, and much thronging to cricket and football matches, pays less attention to the physique of its people than Great Britain. Though we are in the proportion of 77 per cent. town-dwelling population, we neglect the foundations of national strength and efficiency by failing to give to the whole people a sound physical training, as part and parcel of the education of citizenship. And, as I showed in an article in the *Nineteenth Century* (May, 1903), while other nations have steadily improved the physique of their people, there is every sign that ours is deteriorating. Nor can—

2. The *Moral* of the people be separated from its physique, if we look at Education in the broad sense of the word, as the science of producing good citizens, an aspect of it which seems to be the last which occurs to those who are entrusted with the education of our people. We seem to imagine that it is enough to teach children how to read and write, and do arithmetic. In spite of Ruskin's great teaching, we still think that the true test of education is the power it confers of making money, not that of making men and citizens. Yet what does he say? "Education does not mean teaching people to know what they do not know. It means teaching them to behave as they do not behave. . . . Education is not a profitable business, but a costly one; nay, even the best attainments of it are always unprofitable, in any terms of coin." A truth which I recommend to those who talk so much about the *cost* of universal training, which is only another word for national education. "You are to spend," he continues, "on national education, and to be spent for it, and to make by it, not more money but better men; to get into this British Island the greatest possible number of good and brave Englishmen. *They* are to be your 'money's-worth.'" Of education in citizenship, in social duty, in patriotism, we have practically not a trace. In the public schools it is true, there

is some indirect education of character by the fact that boys are entrusted with a certain amount of power and responsibility among their fellows; but even here I think we are beginning to find out that the boasted training of character is not such a wonderful affair after all, and that, while it sufficed for the Colonies in days gone by and for the commercial man in times when there was no competition, it fails to supply the British youth with the power of meeting on equal terms his German or American competitor. I do not propose to discuss the essential reasons here, but there can be no doubt that much is owing to the fact that boys are not taught to consider work as a noble and worthy thing in itself, but rather as a thing to be got over as quickly as possible in order that the main business of life—play—should have all the enthusiasm and devotion which popular favour and the atmosphere of the schools themselves allot to it. Certainly there are few boys of 17 or 18 in England who have been taught to think that they owe any duty to their country and to society, and, unless they happen to be Volunteers, none have been brought into relation with national ideals and needs by personal service of an absolutely unselfish kind. And if this is true in the case of the public schools, it is still more so where the national schools are concerned. Here the citizens of the future are being formed in millions, yet the history and the significance of our great Empire, the responsibilities which are incumbent upon each one of us to maintain our magnificent inheritance untarnished, the cultivation of that civic spirit which was found not only among the boys of Greece and Rome, but is a living force in Germany, Switzerland, France, and Japan; all these things are conspicuous by their absence, while indirectly boys and girls alike are taught to get as much out of life as possible and to look after number one—the State, the Municipality can do the rest! Think for a moment what it means to a nation to lack the cultivation of the spirit of practical altruism which national service for a national cause implies. Putting the thing in its simplest form, consider this fact: Every German, Frenchman, Austrian, Italian, Japanese, and Swiss does for some time in his life actually perform a certain definite service to his country without any fee or reward, simply and solely as a civic duty, which he knows it is an honour to perform. He is thereby not only brought into touch with the national needs and with his country's history—its soul—but he inevitably receives in exchange something of the spirit which has made his country great, and in performing a duty which he shares with all his fellow countrymen, rich and poor, he learns the value and the beauty of co-operation between man and man for something greater than self. I shall perhaps be told that all this can be taught by religion, and that there are many agencies at work throughout the country to teach children that they have duties to their parents and to society, and that there is something more in life besides having a good time. This is quite true; but quite apart from the fact that these agencies reach, in truth, a comparatively small proportion of the population, and that which needs it least, this training itself will not replace the practical and indirect training in altruism which the performance of a great civic duty necessarily teaches. To quote Ruskin again:—"The true 'compulsory education' which the people now ask of you is not catechism, but drill. Compulsory! Yes, by all means! 'Go ye out into the highways and hedges, and *compel* them to come in.' Compulsory! Yes, and gratis also."

3. Closely connected with this tremendous want is the lack in our case of that spirit of social solidarity which also results from national service. In our industrial civilisation, where money and what money gives play an increasingly large part in the minds and lives of all, there is a tendency on the part of the rich to look upon the poor as so many pawns in the game of the acquisition of wealth, and a corresponding tendency on the part of the poorer classes to look upon the rich as enemies and the possessors of something which is eagerly coveted for its own sake. The respect for work well and honestly done, the desire to fulfil one's place in life efficiently and with all one's might, whether that place be a Prime Minister's or a stoker's, seems to have greatly diminished, and with it the healthy respect and friendly feeling of man for man, irrespective of what may be in his pocket. Those who have travelled much abroad will probably agree with me when I say that these phenomena are by no means so frequent or so striking there, where all classes have been brought into close contact with one another in the performance of a common task, and where often a Prince of the blood royal may for a time have served as a non-commissioned officer in a troop commanded by a simple gentleman, and a peer may for a time find himself a private in the ranks side by side with peasants from his own estates. There is no loss of dignity on his part, no loss of respect on theirs. On the contrary, both are improved.

4. *Industrial Efficiency.* When discussing the cost of the voluntary system I said that I would pass over for a moment the question of the loss which a country is alleged to incur by the withdrawal of part of its able-bodied population from productive employment. I have not had time to go into the various calculations that have been made as to the alleged loss to a country by a system of universal service, though I find that Captain (now Sir John) Ardagh, in his lecture in 1876, estimated that the loss to France amounted to 5½ million sterling. Nor do I intend to go into any detail in discussing these figures. I am quite willing to deal with the matter on much simpler lines. I will let anybody put down the loss at as many millions sterling per annum as he chooses, and the higher he puts it the better I shall be pleased. For you will observe that the argument is really suicidal. For, either the Germans have intellectual gifts far beyond our own to outweigh the supposed loss incurred by universal service, or this very sacrifice of time to the service of the country has been repaid a thousandfold in the improved physique, intelligence, *moral*, and industrial efficiency of her people. From pretty close knowledge of Germany, I have no hesitation in saying that, as a whole, the Germans are less intelligent than our own mixed race, which has added the vivacity and quickness of the Celt to the sane, though slow, judgment of the Teuton. It is perfectly clear that whatever sum Germany may be said to lose annually by the withdrawal of a certain number of its manhood from productive labour, the actual result to Germany has been not a loss but a steady and constant commercial gain, so that she is our successful rival and competitor in every branch of industry, even in those in which a few years ago we regarded ourselves as supreme. Nor is such a result in the least surprising. The qualities which men learn in preparing to defend their country are those which add most to their wage-earning

capacity, and consequently to the productive power of the country. Discipline, orderliness, self-control, methodic work, cleanliness, punctuality: these are not qualities which are wasted in civil life; on the contrary, the nation which is without them must nowadays fall behind in the struggle for commercial supremacy. And it is in this very matter of industrial and commercial efficiency, with which national service is supposed to be likely to interfere, that we are most lacking and most in danger of being worsted by those nations which have adopted the modern system. This is not merely true in theory; it is proved by the growing wealth and prosperity of those countries, and is supported by the weighty testimony of the great employers of labour who have joined the National Service League, such men as Sir John Aird, Sir John Wolfe Barry, Sir George Gibb (General Manager of the North Eastern Railway), Sir Alfred Jones, Messrs. Lever Bros., Messrs. Price & Reeves, Messrs. C. J. Wills (of Manchester), Sir Thomas Wrightson, Messrs. Joseph Crosfield (of Warrington), Messrs. William Whiteley, Mr. Henry Birchenough, and many others. All these men, who speak with unequalled authority, affirm that national service is needed to secure industrial efficiency, both in the rank and file of the workers and among its leaders, who, as non-commissioned officers or officers in a national force, would learn those habits of command and organisation which make a successful foreman, manager, and director.

I wish most carefully to avoid trenching here upon the question of fiscal reform, nor shall I express any opinion as to its merits; but of one thing I am certain. No fiscal system yet invented will save this nation commercially and industrially unless its people are trained to those habits of discipline, order, and sense of duty which are the foundation of successful industry, as they are of national life.

5. Of the lack of a national basis of recruitment and its disastrous consequence to our Regular Army and indirectly to our Navy, I have already spoken; but I am anxious to refer to it again for a particular reason. We are sometimes told by people who plume themselves upon being practical that "it is no use talking about universal training, but that we must aim at *practical Army reform*," as if we had not been reforming the Army "practically" for the last hundred years! We are to further increase the pay of the soldier, give him cubicles, let him be out all night, provide him with more games and recreation, not be too strict in discipline, and, above all, provide him with an attractive dress. (It is an amusing comment upon our voluntary system that it was seriously asserted not long since by several newspapers that the lack of suitable recruits was due to the shape of the cap then worn.) These are the practical recommendations which we are told must take precedence of any Utopian proposals in favour of the national adoption of universal training. And there are some who put the thing in a more specious form when they say: "Compulsory service or training is an excellent thing in itself, but quite apart from the fact that *the nation will not stand it*, it would be no use whatever for the Regular Army, which has to fight abroad and garrison the Empire in time of peace; therefore, however good compulsory training may be from the point of view of national health, discipline, *moral*, etc., it is idle to talk of it to practical men who are concerned with providing an efficient Regular Army for the Empire." I regard this kind of talk as the more dangerous because, as I say, it has a certain air of speciousness.

These men forget that you may increase the wages of the soldier and his comforts, and even his pensions, as much as you like, but owing to the natural march of events and the progress of industry, you cannot get a sufficient supply of recruits of a desirable quality unless you have given military training to the youthful manhood of the nation, and so broadened the basis of your voluntary recruitment. This is an essential truth which I venture to emphasise particularly in this place, where I fancy that the argument to which I have just referred has been pretty frequently heard.

There is another important aspect of the loss of military efficiency which the country incurs by its complete adherence to the voluntary system which is by no means sufficiently understood. It is said by some who are entitled to speak with the highest authority, and who have done me the honour to discuss the matter with me, that the great difficulty we have to meet is the supply of officers. The argument runs something like this:—"With our small Army and with our Auxiliary Forces, giving ample opportunity to men to serve as officers if they choose, we are yet thousands short of our peace establishments, and in time of war we should be faced with a terrible deficiency in leadership. How, then, are you going to officer the large force which you propose to raise on a national basis?" The question shows that the fundamental principle of national service has not been grasped in the least. Among the many reasons which contribute to the difficulty of securing enough officers, the chief is, that the nation as a whole and the vast majority of its most intelligent men are not brought into close contact with the question of national defence, and are therefore not in the least led to give their services to it. A considerable number of those who accept commissions in the Auxiliary Forces do so for social reasons, and because of the pleasant comradeship which such work brings, and which compensates for the interference with private business which is entailed in many cases. But there are many officers of the Auxiliary Forces who feel that, with the best will in the world, they are wasting their time in trying to secure adequate results under a system where real discipline and control is vitiated and rendered almost impossible by the fact that men can resign at a fortnight's notice. The whole thing lacks the seriousness of a great national purpose, and its unreality strikes most forcibly precisely those men who take the work most seriously. Is it surprising that under such conditions, coupled with the lack of patriotic training generally, it should be difficult to secure sufficient officers for the Auxiliary Forces or the Regular Army? What is the case in every other country? So far from there being a deficiency of officers, there is always a superfluity, and this though the demands made are in every case enormously greater than those exacted from officers in our Auxiliary Forces. Putting aside the courses required by the German, Austrian, French, Italian, or Japanese officer, we need only look at the Norwegian or the Swiss system. Here the standard of attainment and the amount of time in securing it which are expected of the officers are really extraordinary, seeing that he is a civilian with his own business interests first and a citizen soldier afterwards. Yet, as I have said, there are more applicants for commissions than there are vacancies. Why? Because where every man is obliged to serve his country in some shape or form, those who consider themselves to possess in any way the qualities of leadership, either in virtue of social position

or of brains, will, by an ineradicable instinct of human nature, desire to qualify for the higher position rather than be satisfied to remain among the rank and file. Moreover, such men know that in acquiring the position of officer they will be leading comrades and neighbours who know them well in private life, and who look up to them as their natural leaders in a national force which is but the mirror of the national life. I cannot develop the question here any further, but I am profoundly convinced that *we shall never solve the officer question in this country until we have laid the foundation of patriotic training among the whole manhood of the country, and provided the incentive to leadership which the obligation to serve the country in arms, imposed upon every citizen, would supply to the well-to-do and intelligent classes.*

When we consider the larger question of the power of expanding our national forces in time of war the assertion that this could be done in modern times by the trivial makeshifts and hollow shams of the voluntary system, even by taking Imperial Yeomen from street corners at 5s. a day, is one that no man can seriously entertain, and that the nation itself can only *pretend* to believe even when it is encouraged to do so by its so-called leaders and statesmen. Have we not seen the result of such folly in the disastrous history of the South African War, the true inwardness of which has been exposed to our gaze in the brilliant pages of Mr. Amery's third volume of the *Times* history of the war? Putting aside for a moment even the military inefficiency caused by our national unpreparedness, where is that magnificent patriotism of which we are told so much and which, all untrained, with a cricket bat in one hand and a golf club in another is to save the nation when the enemy is at the gate? The men who came forward during the war were nearly all men who were already serving in one or other of the Auxiliary Forces, and the whole of these put together represent a very small fraction of the able-bodied population of these islands. Mr. Amery tells us that: "Of the Militia and Yeomanry one man in five, of the Volunteers one in fifteen, and of the untrained and unorganised bulk of the male population of fighting age about one man in a thousand came forward in this emergency." Of the patriotism that finds vent in bawling in music halls and molesting passers-by in the street there was enough and to spare; of the courage which talked airily of the war being a "picnic," at which the Boers would run away at the first sight of the British soldier there was enough to fill the columns of most of our daily papers; but of the earnest sober patriotism that submits quietly and without boasting to the personal sacrifices which preparation for war in time of peace necessitates: of that we saw, and see, practically nothing. The result was that we spent £250,000,000 and wasted 25,000 lives in the course of two and a half years in overcoming the resistance of the smallest white people on the face of the earth—a people possessing neither an Army nor a Navy, but merely a conscript Militia, in which every able-bodied man and boy fought for his country. This was the small test applied to our voluntary system, and yet in face of the truth which is known to every nation but our own we are not ashamed to boast of the result in postprandial speech and tell everybody that this nation will never tolerate any form of national service. A leading paper—the *Spectator*—has even gone so far as to write, not in condemnation, mark you, but with smug approval: "Not till the

country has been subjugated will it endure conscription," meaning, of course, national service. And now, as if determined to save us in spite of ourselves, Providence has given us another object-lesson in modern war and its meaning in the tremendous struggle in the Far East. All our pet fallacies, all our twaddle about the needlessness of universal training for an island power, all the canting appeals to the gallery as to the value of the Volunteer in comparison to 12 "pressed men," all the folly about courage without preparation being sufficient, has been swept aside, not by argument, but by the sheer weight of the Titanic blows struck at Port Arthur, Liao-Yang, Mukden, and Tsu-Shima.

The seed laid by those two great patriots, Stein and Scharnhorst, in 1806, when Prussia lay crushed under the heel of Napoleon, found its fruition in the three wars which welded together the fabric of German Unity. And the truth appeared so clear that every civilised nation, except ours, followed the example of Prussia and set to work to organise its national resources for national defence. Japan, which at that time was awakening from the sleep of the Middle Ages, saw at once the truth and justice of the principle that every man should be trained for the national defence, and in adopting Western civilisation it adopted universal service as its natural and most logical concomitant. The results we see to-day. And this leads me indirectly to the final point with which I propose to deal here.

6. National Service supplies the only means by which a modern State can be completely organised for national efficiency in peace as well as in war. The progress of industrial civilisation, coupled with the growth of the democratic principle, accentuates the natural tendencies to selfish individualism. So that to anyone who looks below the surface of our national and Imperial life it must be clear that at the very moment when we have apparently completed the edifice of Empire, disintegrating tendencies are at work which would bring the edifice down with a crash at the first shock of war with a great Power. In an article in the *Monthly Review*, of December last, I pointed out that the centrifugal tendencies in the Empire are enormous and increasing, and that there is only one way of counteracting them, namely, by the introduction of the centripetal principle. In order that the nation and the Empire may stand the stress of war and may organise its forces, physical, moral, and industrial, for national efficiency, it is imperative that the individual should be brought into relation with national needs and aspirations; and this can only be done by personal, and disinterested, service. Thus national service would become a means of giving to the country something of the qualities of the whole people applied to the common good, whilst on the other hand each individual would absorb something of the greatness of national strength and aspiration. In our blind self-satisfaction and reliance on the past and in our refusal to face national service, in our desire to get everything for nothing, and to enjoy Empire without accepting its responsibilities, we are undermining the fabric built up with so much devotion and sacrifice by the great men of the past, and we are in danger of realising the picture drawn by Juvenal of ambitious Sejanus:—

. . . qui nimios poscebat honores
Et nimios poscebat opes, numerosa parabat
Excelsae turris tabulata, unde altior esset
Casus et impulsae praeceps immane ruinae.

The fact is that we are jeopardising our national safety for a fetish and risking our Empire for the sound of a word.

Look around you. Everywhere you see nations organised, trained, and strong in the qualities of their people, whatever qualities they be. We alone, with the vastest Empire the world has ever seen, with tremendous responsibilities, with wealth offering a tempting bait to the strong, are satisfied to go on bungling and botching at a worn-out system, and fondly telling ourselves that it is beautiful and strong. And our leaders, those whom we should expect, in Coleridge's words, to have "the courage to speak the word of Duty to the people," these men flatter the indolence and apathy of the nation, glut them with false praise and lead them to believe that no effort is needed in our case, or that at most all will be well if every man learns to fire off a rifle. Not satisfied with this, some of them betray the post of leadership by telling the people that "they will not stand" any form of national self-sacrifice, even for the defence of their country. What would we think of the commander who, while wanting his men to attack a position, tells them that he does not in the least expect them to follow him? How inspiring, how noble such behaviour would be! Yet this is done every day on the platform and in the half-penny Press. If I might say one thing before I conclude, it would be to ask that those who are not prepared to lead should at least refrain from sounding "the retreat" and from undermining the efforts of those who are earnestly striving to educate the nation to a sense of its duties. Let us at least hear no more of the nauseous drivel about the nation "never standing" any form of national service.

Sir, I have shown, very inadequately I fear for want of time to prepare my subject sufficiently, that by our complete adherence to the voluntary system for every branch of our military forces we not only pay at a fabulous rate for an inefficient and inadequate defence, but that so far from such adherence being beneficial to our national interests, it is disastrous in the last degree, and threatens us before long with the loss of national physique, commercial supremacy, racial union, and finally of dominion and Empire, which must inevitably fall from the grasp of hands too feeble to wield it and pass to those of a more virile race, strong in the principle and practice of national service, unless we realise the warning of that teacher, whom I have quoted more than once, that "it is only in the concession of some great principle of restraint and interference in national action that we can ever hope to find the secret of protection against national degradation."

Major-General M. R. HAIG :—I feel very grateful, Sir, that by the courtesy of this Institution I have been privileged to hear to-day the case against the voluntary system so ably, and, I hope for all of us here, so convincingly stated. To those of us who have been for long years advocates of the compulsory system, it seems passing strange that, with the military history of the world before us, especially of late years and in present days, there should be any necessity for using arguments on such a question. But, unfortunately, we are a people who move slowly, especially in military matters, and I am afraid that the lessons which the present day is teaching are, to a very great extent, thrown away upon us. We hear constantly nowadays expressions (which Mr. Shee

has very properly condemned) against the compulsory system. Such expressions as "Unpractical," "Un-English," "The country would never hear of it," "Impossible" are frequently used, and one weekly paper has actually said, unconscious of the shamelessness of saying it, that not until the country has been subjugated will it endure conscription. I daresay you can hardly credit that a paper of such note could commit itself to a statement of this kind. I am convinced that, if it was not, unfortunately, a notorious fact, the Japanese would say the thing was impossible, especially in a patriotic country like England. How are we to account for such a fact as that? How are we to account for the fact that we hear, for instance, so constantly in Parliament that if you wish to avoid conscription you must do so and so, and that the Volunteers stand between us and conscription—as if conscription was the last degradation to which the people could possibly subject themselves! I think, Sir, we cannot attribute these facts to which I have been referring to any want in us as a nation; on the contrary, I think we possess—perhaps I am prejudiced in the matter—a very fair proportion of intelligence, and that if this question were simply argued on its merits, without prejudice, that there would be no necessity for us to meet to-day to talk about conscription or the voluntary system. I think the real reason of the view so commonly taken by our countrymen is a moral one. We do not maintain the voluntary system, and we do not object to conscription, because we really think that voluntary recruiting provides the best Army for us; we do not argue in that way at all. I think the real reason is this: In the absence of a compulsory system in the Army—which Mr. Shee has shown us to-day tends to a patriotic feeling—in the absence of that we have unconsciously become dull in our sentiment of patriotism. But I must not detain this meeting longer. I have been for years an advocate for conscription, and I rejoice with all my heart that a meeting so numerous as this, and in a military Institution, can be got together, especially on an Ascot meeting day, to listen to a lecture condemnatory of the voluntary service system; and I wish with all my heart the utmost success to the National Service League, which I consider is doing a most valuable and patriotic work for us.

Major-General Sir JOHN ARDAGH, K.C.I.E., C.B. :—I think the first remark I should like to make is one in which I have the most absolute confidence that everybody here present will support me, and that is, that we have received a most illuminating and instructive quantity of information on a most important subject from my friend Mr. Shee. I do not go quite as far as he does in regard to conscription; but I go a very great way. I desire to recall to the meeting that, as regards the duties of our active Army, conscription is simply impossible. The mere idea of compelling men, we will say, to go and garrison some unhealthy foreign station in the same way that a German or a French soldier is called upon to occupy a garrison in his native town, is simply preposterous. What, I take it, Mr. Shee conceives, is not universal conscription for our Regular Forces, but universal conscription for whatever duties may be incumbent on us as a nation in a military capacity. So far I go entirely with him; but I should like to revert a little to one of the methods which attend this question. It is, Where are we to begin? My conviction is that we must begin at the board schools, and that every able-bodied boy who receives his education at the expense of the State should also be taught the rudiments of drill, how to handle a rifle, and how to let it off. I think this is the most important point that we have before us

at the present moment, and I would ask all who are present to use all the influence they possess, and not to cease using it, until we can get our House of Commons to insist upon the education of this country being conducted on those lines. The next point that we have to consider under a *régime* of compulsory service is, How are we to employ all the men who become liable for military service in this country? It will be evident, I think, that we cannot, and do not, find it necessary or desirable in times of peace to compel every able-bodied man to go through a definite period of military service, however short it may be; it is not necessary. I gave my views upon conscription in a lecture here a quarter of a century ago. The number of men who come to a military age in this country, if they were brought into the ranks for a year would cost us an enormous sum to maintain and to employ, and finally, we should not know what to do with them. If we have a sufficient number of men trained in a sufficient manner in the ranks of the Militia, which already possesses a law which enables us (if its operation is not suspended) to fill those ranks up to the requisite number, I think we shall have done all that we require in the way of compulsion. There is no doubt that if that compulsion were exercised for the Militia it would have a very remarkable effect upon the number of Volunteers. A vast number of men would be willing to go into the Volunteers in order to avoid being drawn for the Militia, and if that willingness existed there is no doubt that the general efficiency of the Volunteers might be enormously increased. It might be increased for this reason: that at present a man who enters the Volunteers says to himself, "Well, I need only stay as long as I like; I need only attend as many drills as I like; I need not go into camp unless I like." But if there was a slight reflex compulsion which would affect the whole able-bodied population as regards ballot for the Militia, then we could insist on the Volunteer attaining a much higher degree of efficiency than is now possible. All these points, I take it, are covered by Mr. Shee's lecture. I do not suppose he intends us to turn ourselves into a Continental Power, and to maintain a body of men under arms whom we see no immediate prospect of requiring. I think the main point above all is that which I mentioned at the commencement of my remarks, namely, compulsory military education in drill, discipline, and shooting for every able-bodied boy in the whole country who receives his education at the public expense.

Colonel H. H. A. STEWART, late Donegal Artillery (Militia):—I think at all events those who have paid attention to the lecture have come to the conclusion that Mr. Shee is entirely in favour of compulsory service. Mr. Arnold-Forster, unless I am mistaken, not long ago stated that to adopt the compulsory system of enlistment in this country would entail an additional expenditure on the Estimates of 25 millions a year. What Sir John Ardagh has just said with regard to the enforcement of the ballot for the Militia is, I think, the plan with which we ought to commence as regards compulsory service. The second point that has occurred to me in following the very interesting lecture was that Mr. Shee stated the cost of the maintenance of our voluntary Army is 32 millions per annum. Mr. Shee is a little bit "off the rail" on that matter, to use a metaphor, because the exact amount of the Army Estimates for last year, which I had on high authority only a few days ago, was 46½ millions, so that Mr. Shee's calculation is about 50 per cent. below what the cost of the English soldier to the population is. The third point which has occurred to me is also an important one, with

regard to the number of soldiers committed to prison. I think there is a very considerable mistake in the figures given, and I will tell you why. The number of soldiers in military prisons and branch prisons for last year, or the year before, is given as 22,000. I think that is a mistake, for this reason, that a great number of soldiers who are bad characters and incorrigibles are committed to prison several times in each year, and each commitment is counted as a soldier. I have known myself in my own regiment many years ago in the West Indies the same man to have been committed to prison eight times in one year; that fellow was not much good. I should therefore like to have Mr. Shee's explanation on that point. Lord Wolseley stated in the year 1897, with regard to the number of military prisons in the country, that so good was the behaviour of the soldiers in that year, and for some years previously, that one-half of the military prisons in the country had been closed, and the other half were only half filled. I should like to know how long it is since this terrible "eruption" of bad behaviour amongst the soldiers began. Of course, Lord Wolseley may have made a mistake, for we all know that "a man who makes no mistakes makes nothing at all." There is one other point I should like to refer to, namely, the question of the provision of officers for the Army. I think one great reason, at all events, for the want of a sufficient number of suitable officers is that the game is not worth the candle to serve His Majesty in the Army. Look at the pay an officer gets! I happen to have a son in a distinguished cavalry regiment, and I have to spend a large sum of money on him; in fact, my hand is always in my pocket to keep him going. Is not that one excellent reason why there is a difficulty in getting officers? I believe the cavalry want about 80 or 90 officers; the Guardsmen are short in their number, and even the Infantry of the Line. The expense is, I believe, a paramount reason why we have a difficulty in finding officers for the Army.

T. MILLER MAGUIRE, M.A., LL.D. (Barrister-at-Law, Inner Temple): — I should like to say a few words with regard to the admirable paper of my friend Mr. Shee. I feel a considerable amount of hesitancy in rising to speak in this Institution on these topics, because some of us feel that during the last eight or nine years we have said here nearly everything that we could possibly say on these questions, more sometimes than it was judicious to say in our own interests, and more than was popular in some circles. And we also feel that political partisans ignore all our efforts; yet this is a matter of vital importance to our Empire, and the present is a critical period in the history of our Empire. Our difficulties and dangers are certainly not likely to become lighter as the century gets older, and we, as students, should therefore pay the greatest attention to statements such as have been put before us by Mr. Shee and the speakers who have followed him. Mr. Shee's statement about the Regular Forces and about the Forces of the Crown generally is one of the saddest and most deplorable things that a Briton could listen to. His facts and figures are absolutely appalling, whether we compare the situation now with the situation in which our ancestors found themselves in 1805, or even on the accession of Queen Victoria, or whether we compare the provident care or lack of care of our rulers, not only with regard to its Army, but for the health and prosperity of our people at large and for that of the rising generation with the care and attention paid to them by other Statesmen in other lands. If Mr. Shee be right, there is something to make us not only pause, but be

perplexed and anxious to the very last degree. Is this Regular Army of ours fit for its duty? I hope it is; but if Mr. Shee's figures be correct, it manifestly is not, whether as to the *personnel* of the men, whether as to the numbers and qualification of the officers, or whether it be the inducements given to privates, sergeants, or officers. Is it fair to a nation like ours to trust not only the wealth and honour of the people of the United Kingdom, but the interests of the people of India and the other races dependent on us, on such a broken reed as is described by Mr. Shee? Is it fair to our men to dump them into careers where the remuneration and the prospects are insufficient? Is it fair to our soldiers to send them forth to their death without guns or other details of perfect military equipment? Is it right that our people, a splendid race like ours, having all the elements of greatness still remaining, should be represented in our fighting forces by the people described by Mr. Shee? Are our Auxiliary Forces in a proper condition? I think that the majority of competent authorities agree that they are not. Who is going to set the business right? We must look into the matter ourselves and take counsel together, and see how our ancestors set it right. How did they set it right? They set it right precisely by the method suggested by Mr. Shee. I should like to ask the gallant Admiral sitting near me a question. Is it not the case, Sir, having regard to the preparations of the Navies of other lands, that we were at least as well prepared in the years 1804 and 1805 as we were in the years 1904 and 1905?

Admiral Sir NATHANIEL BOWDEN-SMITH:—Certainly, and we had not so many possible enemies.

Dr. MILLER MAGUIRE:—The gallant Admiral agrees with me. He has said that our ancestors in the years 1804-05, in spite of the fact that Napoleon was hovering over the cliffs of Boulogne, were infinitely better prepared from every point of view, including invasion, than we are now.

Admiral Sir NATHANIEL BOWDEN-SMITH:—I think it is a pity to introduce invasion; it is spoiling our game.

Dr. MILLER MAGUIRE:—Very well, Sir, I will drop it. The question I put to the gallant Admiral was, That we were in 1804-05 as well prepared with regard to naval power as against any possible enemy as we are in the year 1905, without bringing in the question of invasion or spoiling the game; and he said that we were better prepared in 1804 than we were in 1904.

Admiral Sir NATHANIEL BOWDEN-SMITH:—And I added that we had fewer possible enemies then.

Dr. MILLER MAGUIRE:—But we were as fully prepared to speak with our enemies at the gate as we were in 1904. Assuming that we were as well prepared, or better prepared, against our possible enemies in 1804 than in 1904, how does it come about that our ancestors in 1803, 1804, and 1805 adopted the policy suggested by Sir John Ardagh? In 1803 the Military Service Bill was passed on the lines suggested by Sir John Ardagh, and that Military Service Bill, which was passed at the time

when we were about to obtain supremacy at sea, contained clauses enacting that every Briton who was not engaged in the naval forces of the Crown must become either a Militiaman, with men like Lord Raglan, or a Regular soldier, like the gallant Major-General Ardagh, or a Volunteer, like myself. He had to be one of the three. I thought I would bring the gallant Admiral into line, because much unfair nonsense is talked about the Blue-water School, and the gallant Admiral agrees with me. If it was quite right, having regard to the dangerous condition of our Empire in 1803 and 1804, to insist on every Englishman knowing what his position would be in the event of a serious Imperial crisis, whether invasion, fighting with Napoleon or anyone else, whether fighting on sea or land or both—if it was desirable, as Mr. Pitt said, that this should occur in 1804, why is it undesirable that the same thing should occur now? What on earth harm will it do to the people of England? What injury will occur to any middle-aged man or boy of twenty to be asked: "Cannot you spend a certain portion of your life in the service of your country? If you cannot be a Regular soldier, and go abroad to the garrisons which the gallant officer referred to in India and elsewhere, and if you do not want to be a Militiaman for any social or other reason, and if you have some money to enable you to do so, cannot you be a Volunteer for a certain number of years?" I contend that if we get that power—and apparently we are all agreed—that if the result of Mr. Shee's paper enabled this meeting to lay that down as a preliminary basis of operations, that it is not unfair to our youths to ask them to be either Regular soldiers, or Militiamen, or Volunteers, or sailors, as the man who fights on sea is even more indispensable to an insular Power than the man who fights on land. If you are not going to be a sailor of the fleet—one of the men who rule the waves—then you must be a Regular soldier, and we will pay you well, and encourage you, and promote you, and reward you well in every way for your services in the Himalayas or in Africa or Burmah; or you must be a Militiaman, or you must be a Volunteer. If we get so far as the result of this meeting it will have done a great deal of good. I think I have stated what is the minimum that any nation can ask for, especially as we see all over the Continent of Europe the smallest and poorest nations asking a good deal more. If the smallest and poorest nations prepare efficiently for war, if the smallest and poorest nations can have plenty of guns, if the smallest and poorest nations can be ready for emergencies, why cannot we put ourselves in as good a position at the beginning of the 20th century as we were in at the beginning of the 19th century? I quite agree with Mr. Shee on another point. I am quite convinced that if there were no danger—and there are great dangers; if there were no jealous Powers—and there are many; if there was no new naval Power in the Far East; and if there was a new World Power in the Far West; if someone could guarantee to me that there was going to be a millennium for the rest of my life, I would still urge people to drop the idea of a millennium, and say: "For heaven's sake have a universal military service for a generation, anyhow." I would say that for physical and moral reasons, with the object of elevating the manhood of the nation, and restoring to our ball-players their souls. It is part of my duty now to go about the miles and miles of dreary residences of our working classes, and when I contemplate their dull, dreary grey lives, and how there is no unity of tastes and habits between them and their employers, the dull, blighting, uneventful

existences they spend when they stop their toil, it makes my heart bleed; to me it is absolutely deplorable. It is an awful thing to think that there are millions of people who do not share at all with their better educated and more elevated fellow citizens either pleasure, patriotism, or hope. How different from mediæval times at their worst, how low compared with even the ideals of old world septs and clans. Read the "Canterbury Tales," read Spenser's "Fairie Queene," read Scott's novels:—

"Unless above himself he can erect himself,
How poor a thing is man."

The manhood of our nation is dwindling away. I assure you it is so—the soul of our people is dwindling away. Alas! for the parents and children of the flat, the tenement, the slum. I have had a long correspondence with Baron Suyematsu about the soul of the nation. How could the soul of the nation continue to exist under conditions as prevail in the new suburbs all round London—I am not speaking of the distant rich suburbs, but the near working-class suburbs. Conversation and *comaraderie* among different classes would be one great gain, physical improvement would be another. German officers with whom I spend a good deal of my time tell me that the improvement in the German recruit is something incredible—not in the finest and best recruits, not in the peasants of Saxony or Silesia, but in the men who come from the mines in Westphalia. To come out of the mines and be soldiers for two years elevates and improves them in their manners and everything that tends to give a loftiness of tone to the toilers. To take a poor man and put him along with the student and the landed gentleman, and the sons of commercial opulence during their training for the Army has an effect for good on both of them. It blesseth him who gives and him who takes. But without any regard to conscription, I believe that our Regular Army could be made an almost invincible Regular Army if we had better leaders, and that the money we spend on it now could provide us with an admirable force. But even if that were enough for our Empire, even if the Admiral's views about invasion are perfectly correct, and even if I banish the idea of invasion out of my mind—and I have not the slightest intention of doing so—I say that for moral and military reasons the adoption of a scheme such as Mr. Shee suggests would be one of the greatest blessings that could possibly happen to our people at the beginning of this new century, even as a similar system a hundred years ago gave a spirit to our people which carried the Union Jack not only from Torres Vedras to the Pyrenees, but also from Cape Comorin to Nepaul.

MR. SHEE, in reply said:—I should like first of all to say with what pleasure I have heard Sir John Ardagh speak, because I think it is about twenty-five years ago since he gave his lecture here on the cost to a country of the adoption of compulsory service. I referred to that lecture in the course of my own. I can only say that I studied it with the greatest interest and profit, and I am glad indeed to find that I have carried Sir John Ardagh with me in my general contentions, because, as you all know, he is one of the greatest authorities we have in this country, and indeed in the Empire, on the whole question of the organisation and efficiency of our military forces. I am afraid, however, I am not altogether in agreement with one or two of the remarks he made, if I may venture to say so in the presence of so great an authority. I feel—and I think a great many of those who have studied this question feel—

that the ballot, however desirable it may be from the point of view of general expediency, is not a just, and therefore not an advisable, method to adopt, in putting before this nation, or any other nation, the great principle of national service. I do not think it is fair to say to people: "We are going to give you a chance; if you are fortunate you will get off, and if you are unfortunate you will have to serve. You may be a rogue and you may be an honest man; and it may be that the rogue will get off and that the honest man will be taken." I think the uncertainty which would be introduced by that method would be extremely undesirable, not only on national grounds itself, but also for its commerce and trade. I have discussed this question with leaders of industry all over the country, and one and all have agreed that if we are to have any system of compulsory training it should be *universal* in its incidence. One of the great difficulties that employers have to deal with as regards the Volunteer system is this, that they do not know how many Volunteers are going to be called upon, when they will have to go away, and for how long. People who are not accustomed to think these things out say at once: "If you are going to introduce a system of universal training you will have a much greater interference with trade or industry than under the present system." That that is not the case a moment's reflection will show, for if every man knows beforehand that at a certain time and for a certain definite period, and at a certain definite age, he will have to undergo a term of service, he could make his preparations beforehand with absolute assurance, and his employer knows precisely how many men are going to be taken, when they are going to be taken, and for how long they will be away, and he can meet those difficulties. I have discussed the matter, not only with employers of labour here but in Germany, Switzerland, and other countries, and they have all told me there is really no difficulty in the question of the so-called interference with labour, because it is of a certain definite nature well understood by everyone. That is why I have made some remarks with regard to the question of the revival of the ballot. In that connection Sir John Ardagh will pardon my reminding him, and also my friend Dr. Miller Maguire, that immediately after the revival of the Militia Ballot Act for the general Militia there was an Act passed called the Local Militia Act, which had no item of chance and no item of unjust incidence in it.¹ It provided that the local Militia should be raised on the principle of universal service, while the general Militia, which in those days was liable to service abroad, should only be enrolled on the principle of the Militia Ballot Act. We see in the Local Militia Act of 1806 an admirable instance of the way in which the principle of universal training could be revived now. With regard to the points which Colonel Stewart raised, I think he will be amused if I tell him that I have referred to practically all of them in the course of my printed lecture, only I did not want to burden you with them, so I did not read them all. With regard to the matter in which he said I was ten millions out, I will read you this passage: "Sir Alfred Turner"—who is the authority he had in mind—"gives the total cost of the Army, including Supplementary Estimates, as £46,800,000 in 1904-5. It will be seen, therefore, that my calculations are on the most favourable basis, since I am taking the total cost at ten millions sterling

¹ I have since this gone very carefully into the history of this Act, and find that I was wrong in stating that the element of chance was excluded. The Force was raised by the ballot, but substitution was not permitted.—G.F.S.

less than he has placed it." I was very careful indeed to err on the side of moderation in estimating the cost of the Regular Forces; I did not take the highest estimate, which includes Supplementary Estimates and other items, so that I think Colonel Stewart will admit that I have not overstated my case. With regard to Mr. Arnold-Forster's preposterous statement as to the cost of introducing a system of universal service, I do not really think it is necessary, before a body of experts such as this, to go into the matter fully. I do not believe there is a single person here present who believes that those figures were seriously intended; I think they were really meant simply as a means of stifling discussion at the moment, and putting the nation off with the idea that the thing was impossible. But I think the examination to which they were subjected at the time, not only by the National Service League, but by many experts, shows that they are absurd. In connection with that, I should like very much to go back to what Sir John Ardagh and Colonel Stewart said with regard to the great number of men who would be forthcoming under any scheme of universal training—that there would be far too many for our needs. I have gone into this matter with very great care, and if anybody would do me the honour of allowing me to send them the figures, I think I can prove that the number of men forthcoming would not be so very great. You have to remember, first of all, that we have to recruit the Volunteer Army, we have to recruit the Navy, we have to make an enormous allowance, alas! for physical rejections, and we have to consider that we only require the men to be taken for a short period—two, three or four months; we do not know exactly what it would be—but at any rate, I think the number would be 144,000 a year. That may be considered a very great number, but I do not think it is very enormous. There is this final answer to the objection, that we shall have too many men to deal with, namely, that we have only to raise the physical standard a little higher and we can then have as few men as we like. I think there is no juster principle in dealing with this question of numbers than that of raising the physique of the people. It is a far juster one than that of the ballot. It is quite true that the ballot enables you to have as few men as you like automatically; but I think you will agree it is a juster principle to say that we will raise the physical standard and will have a better class of men because we do not want so many. I think that is fairer. With regard to the 22,000 prisoners whom I mentioned, I took the number from the official figures. Every single figure I have given I can vouch for, because it is official. Colonel Stewart's remark that the figures included many prisoners who had been in prison many times over is, of course, justified by the fact that it reduces the total number; but I think it is also a fairly strong comment upon our voluntary system that we retain in the ranks of the Army a man whose conduct is so bad that he is put into prison eight times in the course of one year. With regard to the several points raised by Dr. Miller Maguire, I feel very much obliged to him for having brought them before you, because I have dealt with them in the course of my lecture, but I was not able, owing to the shortness of time, to read what I have said on those points. If you will allow me to do so, I should like to read one passage dealing with the question of social solidarity—the bringing together of all classes so that they might be able to know one another better. What I said was this:—"Closely connected with this tremendous want is the lack in our case of that spirit of social solidarity which also results from national service. In our industrial civilisation, where money and what money gives play an increasingly large part in the minds and lives of all, there is a tendency

on the part of the rich to look upon the poor as so many pawns in the game of the acquisition of wealth, and a corresponding tendency on the part of the poorer classes to look upon the rich as enemies and the possessors of something which is eagerly coveted for its own sake. The respect for work well and honestly done, the desire to fulfil one's place in life efficiently and with all one's might, whether that place be a Prime Minister's or a stoker's, seems to have greatly diminished, and with it the healthy respect and friendly feeling of man for man, irrespective of what may be in his pocket. Those who have travelled much abroad will probably agree with me when I say that these phenomena are by no means so frequent or so striking there, where all classes have been brought into close contact with one another in the performance of a common task, and where often a Prince of the blood royal may for a time have served as a non-commissioned officer in a troop commanded by a simple gentleman, and a peer may for a time find himself a private in the ranks side by side with peasants from his own estates. There is no loss of dignity on his part, no loss of respect on theirs. On the contrary, both are improved." In connection with that, I would like to tell you of a remark made to me by one of the great philanthropists and educationalists in this country, Mr. T. C. Horsfall. He is a gentleman who has been occupied for many years in the task of ameliorating the lot of the poorer inhabitants, especially of the great cities in the North of England, and he has been profoundly impressed by the enormous difficulties that beset him, for this reason, that the vast majority of the well-to-do classes are not brought into close contact with these problems, and he said in a lecture which he gave in Manchester some years ago:—"I do not think that in a country where people are so kind-hearted and so generous as they are in England it would be possible for the conditions in our slums to be tolerated if they were brought into close contact with them—by young men of the well-to-do classes serving side by side in the ranks and doing common service in a common cause." I do not think I have anything further to say, except to thank you extremely for the kind way in which you have listened to my remarks.

The CHAIRMAN (Colonel the Lord Raglan):—It devolves upon me as Chairman to wind up the discussion, and I will begin by alluding to a few points in the lecture with regard to which I am almost wholly and thoroughly in accord with Mr. Shee. In these days, when money is nearly everything, Mr. Shee has rather wisely taken his stand upon the fact that our present system is extravagant. A great man once said there were two sorts of extravagance: A man's extravagance, which consists in paying half-a-crown for a thing worth eighteenpence when he wants it; and a woman's extravagance, which consists in giving eighteenpence for a thing worth half-a-crown when she does not want it. It seems to me that our present system most successfully combines both those forms of extravagance. In peace we spend eighteenpence for a thing worth half-a-crown because we say it is so cheap, although we do not want it, and in war time we have gone into the hedges and by-ways and paid half-a-crown for a thing worth eighteenpence. Mr. Shee has particularly alluded to the manner in which the classes of this country are separated by modern industrial conditions. A still worse thing is this, that the greater part of the classes of this country do absolutely nothing whatever for the service of their country. People always say: "The working man would not stand compulsory service." My belief is that the working classes are in favour of it, and if I was going to fight a working-class

constituency, supposing I was standing for Parliament, and this point came up, I should say:—"Gentlemen, what classes have chiefly benefited by all the fighting done for this country, which has created the British Empire? Why, the manufacturers and trading classes, who have never fought at all. Let them come and take their share like everybody else." Would not the working men give me a cheer if I said that? And would I not get their votes? In connection with that, I would like to tell you an anecdote, although it is a shocking thing to have to tell you. It was told me not long ago by a friend of mine. His brother-in-law, a leading North-country manufacturer, said to him: "It is perfectly incomprehensible to me that anybody can go and become a soldier in order to kill or to be killed; it is a thing I do not like; it is shocking." My friend replied: "It is precious fortunate for some of you people that somebody does do it." And he said: "Oh, well, that will be all right." The result of these ideas is that patriotism, love of the country, and love of the flag, as understood abroad, even in the United States of America, is dead in this country. Would it be possible in any other country to see the national flag, as we do in two cases out of five, hung upside down when the streets are decorated in any town in the kingdom? Another point which has been alluded to more than once is the loss of wage-earning capacity. That will be absolutely nothing. The number of men who work fifty-two weeks in the year is uncommonly small, and when a man can afford to loaf away part of his time he may just as well be serving his country. There is one thing in which I entirely disagree with what the lecturer said. He stated in the course of his lecture that the principle of compulsory training was founded by Stein and Scharnhorst. Compulsory service was enforced in England many hundreds of years before their time; it was this country which invented compulsory service and carried it out, and the result of compulsory service was that the British archer walked about Europe for 200 years as if it belonged to him. I said before there are certain classes who do not do their work. Could anything be more dreadful than to think of the cry which arose from the whole Press of this country without exception on the publication of the report of the Duke of Norfolk's Commission. Why should that be? Because the class who own newspapers and who write in the newspapers are the very class who do not do anything for the service of their country. They are the class for which the Volunteers were supposed to be formed. Are the middle classes to be found in the Volunteers? No; the middle classes have left the Volunteers. The Volunteers now consist of the working classes, who ought to be in the Militia, and the middle class, for whom the Volunteer Force was formed, have ceased to go into it, and do absolutely nothing for their country. I think we should agitate for compulsory service on the lines of the old Local Militia. I believe that the Acts in connection with it are not repealed, and that if the Secretary of State were to write to-morrow and say: "Embody at once the Local Militia," it could be done. Sir John Ardagh brought forward the question of foreign service and conscription; but I think he will find that in other European Armies a certain amount of the foreign service is done by conscripts. I do not think the French Marines are raised by voluntary enlistment, nor do I believe that when the German Army invaded France in 1870 they said when they arrived at the Rhine: "We are conscripts, and we cannot possibly go abroad." You would not of course make conscripts serve abroad in time of peace; but I would say myself that whether a man is a conscript or whether he is not, he must be liable to go in time of war to the place where he was wanted, because five million trained men

drilling like the Guards and shooting like the King's Prize winner, sitting on the banks of the Thames would be of no use to this country if the destiny of the Empire was being decided on the Oxus. Mr. Shee has dealt with the question of the number of men available. I most thoroughly join with him in his objection to the ballot, and still more, if I may say so, for the suggestion Sir John Ardagh made, that the Militia ballot was to be used as a bogie to fill up the ranks of the Volunteers. The result probably would be that you would tempt men into the Volunteers by saying: "You do not get so much training there as in the Militia," and therefore you would compel the poor man to thoroughly train himself in the service of the country, while you would allow the rich man to buy himself out into another force in which the terms of service were easier. I do not believe that you have the right to go to the country and put such a scheme of that sort before it. Mr. Shee has already referred to Mr. Arnold-Forster's figures, which took my breath away, and that of a good many other people, too. Colonel Stewart alluded to the want of officers, which is very great in the Army, and still more so in the Auxiliary Forces. I do not see anything myself which will give you the proper number of officers for any form of Auxiliary Force unless you have some system of payment, which will have to be pretty high, or they must be compulsorily trained like everybody else. Compulsory service will at once sweep away all those difficulties. I have only one other thing to say, which is that anything else, including all these other excellent things we hear about rifle clubs and about training boys in schools, are all beautiful in theory, but they are all part of a system for shirking the real issue. Even if you have a man drilled like a Guardsman and shooting like a King's Prize winner, he is of no use to you unless you can get him when you want him, and if you have got him and you have nowhere to put him, he is of still less use to you. You want a cadre to put him in; you want non-commissioned officers and officers to lead him. No system of rifle clubs will do what we want. If we had the whole of the able-bodied inhabitants of this country, men, women, and children, firing from noon to night you would not make an Army. I regret most deeply that Lord Roberts has committed himself in that connection. Sir John Ardagh again has advocated drilling boys at school; but you must remember that of those so drilled only one in five will enter any of our Forces under present conditions, and even then it will be years since he was drilled; and if I know anything about the War Office, the drill will have changed twice over during that time, and therefore it would be far better if the boy had not learnt anything before. Drilling schoolboys is another form of shirking the subject that I do not like to see. I have a letter here from a great supporter of National Service, General John Hart Dunne. His words are so wise that if you will allow me I will read them. He says:—"It would take every man, horse, and gun that we possess at this moment to defend our Imperial interests in India, and generally abroad. Lord Roberts's idea to turn the manhood of the country into rifle experts would be of little use unless they were made to undergo a certain amount of military training and discipline. Without this his proposition may do more harm than good by encouraging the country to live on in a fool's paradise, with nothing but a mob of good shots to fall back upon! Besides, it does not at all follow that our next war is likely to be carried on like the Boer one. Let everyone with influence now urge upon our War Minister that if he does not at present insist on obligatory service, he should at all events so far copy the Swiss as to have our Auxiliary Forces so welded together, with proportional artillery, engineers, transport, and

hospital corps, as to be able to form complete brigades and divisions ready to meet an emergency that sooner or later is sure to overtake us." I have one remaining duty, namely, to propose a vote of thanks to the lecturer for his interesting lecture. I need not mention on your behalf the very great interest with which you have listened to the lecture, which was full of most pregnant facts and figures that it behoves us all to take away with us and ponder over.

THE VON LÖBELL ANNUAL REPORTS ON THE CHANGES AND PROGRESS IN MILITARY MATTERS IN 1904.

Précis from the German by LIEUT.-COLONEL E. GUNTER, *p.s.c.,*
(late) East Lancashire Regiment.

Continued from the November JOURNAL, p. 1284.

CAVALRY TACTICS, 1904.

France.—New Cavalry Drill Regulations were issued in 1904, but contained only such amendments as had been made from time to time in those of April, 1899. Dismounted action in accordance with the Musketry Regulations of 1903 is given an important place, offensive action even being sanctioned. Stress is laid upon skilful advance for this. The actual dismounting is to be delayed as long as possible so as to rapidly approach and surprise the enemy, and to quickly obtain superiority of fire. It is, however, laid down that the main action of Cavalry is mounted action. To this end the Dragoon Regiments of the Cavalry Divisions have now both ranks armed with the lance experimentally. It is apparently intended to reduce the Cavalry term of service, like that of the Infantry, to 2 years, notwithstanding the loud protests of many experienced officers. To meet this a shortened period of training for young horses is being tried, the lunge being used, etc.

Besides the Army Corps Manœuvres in the East and N. West,† there were held special Cavalry Manœuvres under General Burnez between the 2nd and 3rd Cavalry Divisions, and separate manœuvres of the 4th, 5th, and 6th Cavalry Divisions and the 6th Cavalry Brigade. The most important of these were those of General Burnez (President of the Cavalry Committee) at Bar-le-Duc, lasting 11 days. Each of the 2 Divisions exercised in Brigade and Division alone. Then for 6 days they manœuvred against one another or worked with Detachments of the other arms. On the last day the Senior Cavalry Divisional Commander led both Divisions against a combined Infantry Division.* The endeavour to force a decision with the mounted arms alone was as observable here as at the Corps Manœuvres.

Cavalry dismounted action was also assiduously practised. For the first time, 2 Cavalry Brigades were exercised in Field Firing at long range. This took place in 1904 at Châlons-sur-Marne. The introduction of machine guns is being discussed. The *Revue de Cavalerie* for July and August, 1904, gives an account of "*Le Raid*

†Alluded to under Tactics of the Combined Arms. See p. 1283, November JOURNAL.—E.G.

*An account of these is given in the "*Militär-Wochenblatt*," No. 126, of 1904.

National Militaire—a sort of long-distance ride. It was carried out perhaps more from the point of view of "*Le Sport*" than of a serious military exercise.

Germany.—Little change is to be reported in the methods of training and equipment of our Cavalry. The horse and the lance are and will remain the chief weapons of the Cavalryman in Reconnaissance† as on the field of battle. Bearing in mind this principle, additional attention was bestowed on musketry instruction and skirmishing.

A larger number of Regiments were given the opportunity of exercising in Cavalry Divisions.††

The Guard Cavalry Division†† exercised with its 3 Cavalry Brigades at Alten-Grabow from the 15th to 23rd August.

The A Cav. Divn. (specially formed) as well as the Guard C. D. manœuvred with the IXth Corps at the Imperial Manœuvres.

" B	"	"	VIIth A Corps.
" C	"	"	Alone.
"	Württemberg C. D.	"	XIIIth "
"	Bavarian	"	IIIrd Bavarian Corps.

A special Cavalry Corps, composed of a mixed Cavalry Division, and of the Guard Cavalry Division, manœuvred on the 24th and 25th August under General Edler von der Planitz, and on the 25th and 26th under H.M. The Emperor.

The Report describes at some length the Imperial Manœuvres with the IXth and the Guard Corps. The Guard Cavalry Division, with 3 Brigades of 2 Regiments, each 5 Squadrons, and the Cavalry Division A took part. Each of the 6 Infantry Divisions of the 2 Army Corps had a Regiment of Cavalry of 5 Squadrons attached as Divisional Cavalry.

In contrast with the manœuvres of 1903, good opportunities were afforded both Cavalry Divisions for distant Reconnaissances, etc., and this in a country which, owing to its diverse and broken nature, made great demands on all ranks. Space forbids even epitomising the Report of the Imperial Manœuvres of 1904, which is illustrated by an excellent sketch-map of the ground the Cavalry worked over.

Great Britain.—The Report repeats more in sorrow than in anger, the account previously given of the change in the views as to the tactical employment of Cavalry by the British authorities, and quotes at some length the introduction by Lord Roberts to "*Cavalry Drill*," 1904.

It notices that Lord Dundonald in Canada, Sir E. Hutton in Australia, and, most important of all, Lord Kitchener in India, upheld these views, and said that Lance and Sword have now become but auxiliary weapons to the new accurate long-range rifle which replaces the Cavalry carbine.

The incident of the stampede of the horses of the 8th and 14th Hussars from their bivouac at Southampton when about to embark for the Essex coast and the promptitude with which the 1st Dragoon Guards, having marched 60 kilometres from Aldershot, stood ready

†It is not quite apparent how the Lance assists Reconnaissance.—E.G.

††Only 1 Cavalry Division (the Guard C.D.) is permanently formed in peace.—E.G.

for embarkation on the quay at Southampton are commented on. General Baden-Powell is complimented on the progress made in scouting; but in the Essex Manœuvres many defects in this respect were still noticeable.

Italy.—The new "Regulations for Cavalry Reconnaissance" were well illustrated by the Cavalry Brigade Manœuvres in Piedmont. Two Cavalry Regiments of 6 Squadrons each, with a Battery of Horse Artillery and a Company of Bersaglieri, were pushed forward on each side. Messenger (homing) pigeons and captive balloons were used by both parties. The manœuvres lasted from the 27th to the 29th August inclusive, and were of great value, being carried out as in war. The principle laid down in the new Regulations, that "In Reconnaissance that Cavalry shows itself superior which sends in the most frequent and most reliable reports concerning the enemy, rather than that which gains the most petty successes on encountering him," was well carried into practice.

Russia.—Great complaints were made in the Press of the insufficiency of the Training in Cavalry Reconnaissance work.† (When opposing parties are started at a distance of only 6 versts (under 4 miles) from one another, the advanced scouts can only be a short distance ahead. By the time their reports come in, the heads of the Infantry columns are within 2 versts. The enemy is too close for the Commanders to alter their arrangements already made, no matter what the reports are. It is proposed to start the opponents at least 12 versts (8 miles) apart, and to forbid the columns to make any arrangements until the reports of the advanced Cavalry are received and digested. But it is contended that no Reconnaissance can be effectually carried out without fighting for it. The mass of Cavalry should therefore follow, with Artillery, close on the heels of the scouting parties; so very few are available as despatch riders, etc. The training formations, etc., of the Cavalry for attack, and the position on the line of march, as well as the employment of the Horse Artillery in action are also criticised.

FIELD ARTILLERY TACTICS, 1904.

[N.B.—The term "Brigade-Division," though abolished in British F.A. Drill, is used below to indicate the group called "*Abteilung*" in the Report of 3 Artillery Batteries in Foreign Armies. Some of these have Artillery *Brigades* of greater strength, so it might be confusing to use that term.—E.G.]

No important questions regarding Field Artillery have arisen in the past year besides those already discussed in previous Reports. A certain number of opponents of Field Howitzers still dispute their value as *Field Artillery*, but this number is diminishing.

Belgium.—The experiments against Batteries of Field Artillery with and without shields resulted somewhat as follows: Against shields of ordinary thickness†† shrapnel with steel bullets pierced them, while

†The indifferent performances of the Cossacks in the late war in Manchuria seem to justify these; but there seemed to be only a small proportion of the best trained Cavalry with them.—E.G.

†† (?) 5 millimetres = .2 inch.—E.G.

hardened lead bullets did not. Thicker shields, however, were not penetrated by either. The *matériel* did not suffer from Rifle fire; but the barrel-recoiling guns were vulnerable under Artillery fire if essential parts of the mechanism were struck. The expectations from common shell fire were not fulfilled.

France.—In order to bring about a closer co-operation between Artillery and Infantry, one of the two Field Artillery Regiments† hitherto forming part of an Army Corps in war has now been attached permanently in peace to one of the two Infantry Divisions composing the Army Corps by Decree dated 12th July, 1904.

The Artillery Brigades uniting the two Artillery Regiments into a Command are therefore broken up.

This is an experimental arrangement, and there are certain exceptions to it, e.g., the VIth and VIIth Army Corps and the XIXth (Algerian) Army Corps have 3 Divisions each.

In the new organisation the Corps Artillery† is not formally abolished. The ideas prevailing in France as to the employment of massed Artillery make it quite likely that new Corps Artillery Regiments may be formed even in peace, or the Corps Artillery may be formed on the outbreak of war by the amalgamation of some Artillery Regiments which have been attached to the Infantry Divisions in peace.

"*La France Militaire*," in its issue No. 6217, complains of the want of Artillery power, saying that the Germans, though they abolished their Corps Artillery, have increased the number of guns per Army Corps, and that France should follow suit by doing likewise.

General Brugère, who conducted the manœuvres of the VIIth and VIIIth Army Corps in 1904, expressly demands the united action of masses of guns in order to obtain the victory, this being proved by the fighting in the Far East.

The French are well alive to the importance of the Supply of Ammunition, and the necessity for constant practice in this. The XIIIth Army Corps carried out practice on a large scale in this at Clermont-Ferrand in 1904, and the Regulations of 1902 for the Supply of Ammunition have been amended.

Younger officers are demanded as Battery and Brigade-Division Commanders, so some of the older ones are being relegated to other employments more suited to their talents. The proper handling of the new guns requires freshness, devotion, and skill.

Much practice in entraining and detraining Artillery in open places without special platforms was carried out in France in 1904. Experiments have been made with a portable Field Observatory, which is carried on the march with the Field Forge Wagons.

Great Britain.—The Report gives without comment the changes in "*Field Artillery Training*," the division of the Battery Ammunition Columns, and the different kinds and methods of fire used, which it is unnecessary to reproduce.

†A Divisional Field Artillery Regiment comprises 2 Field Artillery Brigade-Divisions, each of 3 Batteries Field Artillery, each Battery of 4 guns. A Corps Field Artillery Regiment comprises 3 Field Artillery Brigade-Divisions, each of 3 Batteries Field Artillery, and 1 Horse Artillery Brigade of 2 Horse Artillery Batteries.—E.G.

Japan.—The Report gives short extracts from the Japanese Artillery Drill, as this arm has attracted particular attention during the War in Manchuria. The principles are similar to those laid down in German Artillery Drill.

In 1903 new Regulations for Artillery Fire were issued.

The gun detachments consist of 1 leader and 5 men. Each wagon has 1 driver and 4 men.

The formations are, Line, Sub-division, and Section Column. Scouts are sent forward.

The Artillery plays a great part in battle. Several Artillery Units are placed under one Artillery Commander, and receive all orders through him.

From the first the Batteries must support the other arms. Simultaneous concentration of fire should be aimed at. The Tactical Unit is the Brigade-Division of 3 Batteries. It is not advisable to separate the different Artillery bodies, which are engaged in a common task, too far, but they may be formed in groups ranging in size from a section to a Brigade.

Great stress is laid on the importance of the choice of good fire positions. The Artillery Commander gives the order to open fire. Support of the Infantry is always a duty, especially at decisive moments; then the guns must not hesitate to advance even under Infantry fire. It is to be protected from surprise by Infantry pushed forward, but must also be able to protect itself from close attack. On attack by Cavalry it must unlimber without undue hurry and drive them back by continuous salvos.

Neither losses of men nor want of ammunition are to induce them to leave their position.

Scouting is of the greatest importance, so all large bodies of Artillery are to be furnished with escorts, mounted and on foot.

The frontage of a 6-gun Field Battery in action is from 56 to 140 paces (45 to 117 yards); Battery intervals, 28 to 56 pieces (22½ to 45 yards).

The approach to a position is to be made beyond the reach of hostile fire, and careful scouting to avoid surprise take place on the way as well as in action.

If possible the position is to be occupied simultaneously by all guns. Under hostile fire no change of position is to take place. It is better to occupy a position under cover of darkness if possible; if not, to deploy out of fire and to move rapidly at wide intervals into position. The Artillerymen are to be trained to throw up quickly cover for themselves and guns, even under fire. To obtain enfilade fire even sections may be detached.

In emergency the Battery Commander may exceptionally change his position, but must immediately report this to the C.R.A.

Ammunition Supply.—Artillery requires so much ammunition that especial care must be taken to ensure this. Each Battery has 3 ammunition wagons with its guns. The other 3 wagons of each of the 3 Batteries of a Brigade-Division are collected and form the Ammunition Reserve, under a Captain. It marches in rear of the Brigade-Division. In action it remains where the Commander of the Brigade-Division orders. Each regiment has 1 and each Infantry Division 3 Ammunition Columns, each composed of 27 Ammunition Wagons. Thus each gun has, counting the 40 shell carried in the gun and limber, 355 shrapnel and 45 common.

These Ammunition Columns follow the Division on the march.

The Report gives further regulations for firing, etc., for which we have not space.

Russia.—Each Field Battery has 8 guns and 8 wagons with them and 8 more ammunition wagons in the 2nd line. The intervals used are: close, 8; half interval, 16; full interval, 24 paces (7, 14, 21 yards).

In action the Ammunition Wagons are from 8 to 12 paces in rear of the guns in *échelon*; the gun and wagon limber further back under cover.

The difficulty of Ammunition Supply under fire is recognised. Last summer experiments were made with hand trucks, having wheels 11½ inches in diameter, holding 36 rounds. A sort of roller (or field capstan) was fastened to the ground near the gun by pickets. A rope 600 metres long was passed round this. These ammunition trucks were fastened to it. After being filled under cover they were drawn up by men or horses to the guns, and when empty drawn back again to be refilled with live ammunition, under cover as before. In like manner guns could be drawn up where the ground admitted of it from under cover to the open without exposing the horses or men drawing it up to fire.

Sweden.—The Swedish Field Artillery has been re-organised in Regiments of 3 Brigades, each of 3 Field Batteries. There are 4 guns and 6 ammunition wagons in each Field Battery. The gun detachments consist of 1 non-commissioned officer and 8 men, of the latter 3 drive on the gun limber and 5 on the ammunition wagon; 4 of the latter are with the guns; 2 are kept back in the 2nd line.

Switzerland.—Out of the former 56 Field Batteries of 6 guns each 72 Field Batteries of 4 guns each have been formed. A Regiment is composed of 2 or 3 Brigade-Divisions, each comprising 2 or 3 Field Batteries. Each Battery has 10 ammunition wagons. In the Artillery Park there are 144 wagons instead of 56 as before. The gun detachments are of 9 men.

Lessons from the War in the Far East.—Though reliable reports are not yet to hand which would enable trustworthy inferences for future guidance to be drawn, yet the particulars gathered from the events of the past year suffice for a few remarks.

The Japanese had a thorough knowledge of the country, gained in the war with China of 1894, and had early prepared for the present campaigns, while the Russians found themselves suddenly and unexpectedly involved in a war for which they had made no preparations until it broke out.

Having obtained early the command of the sea, the Japanese were enabled to bring their new mountain batteries† into action.

The Japanese excelled in working thoroughly with the other arms, in concealing the actual position of the guns by screening, in providing cover for them, and in utilising the features of the ground for this and for the approach to the position. The Russians, on the other hand, neglected masking their positions, choosing these, as a rule, on the sky-line. They had a prejudice against indirect fire; they did not make sufficient preparation for effective fire; they never showed any inclination to change their position, however defective;

†The mountain gun is of hardened bronze, 3-inch calibre, throwing an 8½ lb. shell with a muzzle velocity of 1,380 f.s. See the JOURNAL for June, 1904, p. 735.—E.G.

they misused the rapidity of fire of which their guns were capable; and they adhered too rigidly to the principle that the first object of the Artillery must, under all circumstances, be the hostile guns.† They also over-rated their own superiority in weapons; but the ballistic superiority of the Putilov did not make up for their inferiority in numbers, and their tactics were inferior to those of the Japanese, who understood how to employ their guns according to fixed principles applied to ground they fought them on, and whose leaders estimated correctly the value of the gun as the principal arm at certain phases of the action, and that they laid great stress on coming into action rapidly and skilfully.

The Russians themselves acknowledge their tactical as well as numerical superiority in the early stages of the war, in skilful choice of positions, in the use of ground, in judging distance, in united mass action, and in concentration of fire upon decisive points. They kept their guns in large groups, as opposed to the Russian method of splitting them up into small units.

In the second half of the campaign, though still inferior in their mountain guns, they were more successful, as they gained experience and received reinforcements. By the time Liao-yang was fought (the end of August and the beginning of September) the Russians had 350 guns more than the Japanese. The Russians were, however, far too demonstrative in their preparations for the occupation of positions, so the Japanese were always ready for them, and directly they opened fire they were overwhelmed by the Japanese carefully-laid guns. After this, at Wafanku, and especially at Tatchitschao, the Russian Artillery used indirect fire from positions 500 yards in rear of the crest of the ridges, and with 24 Batteries at the latter action contended against the Japanese with 78, the latter not having been able to locate the Russian guns. The Russians showed here the possibility of the Artillery Commander directing the fire by telephone, signalling, etc., at some distance from his Batteries.

The Japanese used advanced Batteries in forward positions to open fire, drawing that of the enemy, and so making him disclose his strength. They increased their intervals also to diminish their losses, and later on the Russians imitated them in this.

The Japanese found shrapnel more effective than common shell.

Neither side used shields on their guns.

Lieut.-General Rohne wrote a paper in the December (1904) No. of the "*Jahrbücher für Armee und Marine*" on "*Feld-Artillerie im Ostasiatischen Kriege.*"†† In the October No. of this publication, "*Schwebende Artillerie Fragen*" has also attracted attention.

Up to the present the war has failed to prove that the introduction of modern guns has led to any great revolution in the conduct of war. Improved weapons influence it as heretofore.

Concentration of Forces, massing of guns, great mobility, converging fire, thorough co-operation with and support of the Infantry are the leading principles. Greater skill in the use of ground for cover and of indirect fire where such is applicable; greater skill in

†Sir E. Hamley, himself a gunner, laid down as a good general rule for the action of Artillery that it should fire on that part of the enemy's Force that is doing the most harm at the time.—E.G.

††See also the JOURNAL for July, 1905, pp. 862-3-4.—E.G.

quickly opening fire, acceleration of the bombardment by suitable methods, and the aid of a good range-finder; a prudent use of ammunition and increased certainty of its supply are main points.

FIELD ENGINEERING IN 1904.

The Russo-Japanese War has confirmed the prediction that in future wars the utility, nay the necessity, of Field Fortification in the attack as well as in defence would assert itself.

From the first fight on the Yalu to the present moment,† when both opponents stand facing one another in entrenched positions awaiting the favourable moment to engage, it has been a war of fortified positions. The prediction that it would not be a matter of 24 hours, but that days would be required to capture these has been justified. An inexhaustible source of instructive lessons has been tapped, and the general interest in these struggles will, it is hoped, raise the art of Field Fortification practically to the position it has long held theoretically, and the Infantry soldier's Intrenching Tool will not only be carried in its frog, but will be industriously made use of.

No trustworthy details of the Intrenchments made are yet to hand, but it seems that the lighter forms of Shelter Trenches,†† etc., were abandoned for deeper ones, overhead cover, etc., in view of the heavier Artillery brought into the field.

It will be necessary to have intermediate forms of Field Intrenchments between the so-called Field Trenches and Permanent Fortification, i.e., strengthened field works, provisional and semi-permanent types. The tendency is towards rigid classification, according to these. Piarrot de Montdésir, General Dupommier and Lieut.-Colonel Clergerie had written about this in the "*Revue du Génie*," May, July, and September, 1904. Montdésir advocates groups of Shelter Trenches and covered pits without Field Works, leaving localities entangled, as obstacles and as cover for Reserves, with Trenches only on their flanks. Dupommier would have these occupied in the style hitherto recommended. Colonel Clergerie considers that the main position should be withdrawn behind the crest which is to be intrenched, so as to sweep the front slope, and, combined with advanced intrenched positions, compel the early deployment of the enemy and contest his advance. He thinks that the attackers are so excited, that on arriving at medium range they shoot wildly.

Von Brunner* considers Reserve Positions always necessary when opposed to Heavy Artillery. Deguise** sees no reason to modify his views published a decade ago. Only in his later book he makes his closed works of a minimum depth to lessen Artillery Fire-effect and of great length of slight profile with Breastworks and Trenches with

† Published in April, 1905.

†† A translation of the Japanese Instruction in Field Works, etc., 1902, appeared in the JOURNAL for June, 1905, p. 680. They are interesting, and somewhat resemble those in our M.M.E. The Infantry carry the Leinemann Intrenching Tool.—E.G.

* "*Die Feldbefestigung*"; 8th Auflage, Heft 2, 3, Vienna, 1904, Seidel & Sohn.

** "*La Fortification passagère et semi-permanente*," Brüssel, 1904, Polleunis et Centerick.

banquette in front and rear. In contrast to this, General v. Lignitz* favours works of strong high profile like those of the Turks at Plevna, owing to their moral effect. He says they give the defenders confidence, especially at night. But it is doubtful if their imposing appearance will have a greater effect on the attackers than if the latter come suddenly upon intrenchments invisible from a distance. Von Lignitz says the attackers' fire distributed all over the position is really more harmful than if it were concentrated on the field works, the garrisons of which could remain away from them under cover until just before the assault. The works must, however, be protected against surprise by advanced Trenches.

This is hardly in accordance with the views generally held now that the garrisons must remain close to their firing stations if they are to be reckoned upon for effective fire at the critical moment; so cover must be found or made for them near these, otherwise Field Intrenchments are useless.

2. Bridging.—All European Armies continue to experiment with the construction of Light Bridging Trains for the Independent Cavalry which shall combine the greatest efficiency with the least weight, so that cavalry may be enabled to cross even the wider streams at all seasons.

The details of the German, Austrian, and French Light Bridging Trains are given. The Austrian is undoubtedly the most efficient; but as it consists of 6 pontoons and 2 trestles carried on 3 wagons drawn by 18 horses, it is a heavier burden to the Cavalry Unit than the others. The pontoons are of steel. The French have adopted General Donop's steel boat pontoons and apparatus for this.

Lieut.-Colonel Schott, of the Swiss Army, has written a useful paper on Bridging Expedients,** which the Report says might well be studied in the German Army. What Swiss Militia can do in their short training period in four successive years the German technical troops ought to be able to accomplish in the time at their disposal, if their Engineers are properly divided up into separate technical branches.

3. The Army and its Technical Troops.—The Report bewails the neglect of the technical troops by the higher leaders. Von Moltke, after 1866, sought to remedy this, but how many times were the Engineers forgotten in 1870-71, consequently not at hand when wanted?! It is because in peace they are not exercised with the other troops. At the War Game the Engineers are constantly left out of all account. Engineer officers are only appointed to the Head Quarter Staffs on mobilisation. Summoned from their peace occupations, which bear no relation to War requirements, they can render far less service than if these had been practised in peace. A captain or officer of higher rank of Engineers should be attached to the Head Quarters of each Command in peace, so that technical questions might be considered and habitually dealt with as opportunity offered. Schweninger*** discusses this

**Folgerungen aus der Schanzenverteidigung der Turken in 1877-78, "Militär-Wochenblatt,"* Nos. 15-16, 1904.

***"Colonnenbrücken und Notmaterial," "Schweizer Zeitschrift für Art und Génie,"* December, 1904.

****"Unsere Pioniere,"* Berlin, 1904, A. Bath. *"Ingenieur Stab der deutschen Armee,"* Jahrbücher, November, December, 1904.

question, and advocates decentralisation and distribution among Corps and Divisions in peace and war, a Head Quarter Engineer Staff and the equipment of the Army with tools, etc., of the latest pattern.†

PERMANENT FORTIFICATION.

The Report has a long chapter on the experience gained in *Permanent Fortification* in 1904, which, it says, was full of valuable instruction to the Engineer, as it afforded an actual example of a siege carried to its termination under conditions of modern warfare. Though it is impossible to draw reliable conclusions from events, the details of which have been as yet but imperfectly reported, and the scene of which is still imperfectly known, for the maps hitherto available show but poorly the topographical features, or the exact position of the works, etc.; yet a certain number of uncontrovertible facts connected with this famous siege are known. Bearing in mind therefore that it was years after the Siege of Sevastopol before reliable data on which to form a sound military judgment were available, the authors think it well to examine and report on such matters concerning the Defence and Attack as seems to be of utility for the general purpose of this Annual Report of Progress in Military Matters. The Commandant, General Stoessel, had studied the Siege of Sevastopol and endeavoured to follow out *Todleben's* principles. On the other hand, *Major v. Debno-Gologorski** has made us acquainted with the views of the Russian General *Kasbeck* which were those prevailing in Russia last year. The Report describes the seafront attack; the employment of the Reserves to keep the attacker at a distance as long as possible; the attempt to attack by *vive force*; the distant Artillery attack; the Infantry attack. It shows the necessity for the actual practice of troops in Attack and Defence in Fortress Warfare in time of peace. The Report then goes into the Defensive Power of Modern Fortresses and their value to an Army in the field. It has a short chapter on auxiliary works and on the Equipment and Garrisoning of Fortresses, quoting *Wagner* and others. It deals with the different methods of assuring security from Assault, and with Bomb-proofs, Blindages, etc. It describes the methods of the defence of the interior of a Fortress advocated by different writers; in fact goes into such matters as Books on Permanent Fortification usually deal with.

After this comes in Chapter 4 of this part, the *Progress of Permanent Fortification* in Belgium, Bulgaria, France, Germany, Great Britain, Italy, Norway, Russia, Sweden, and the United States during 1904.

The construction of two new forts at Antwerp was commenced. The works on the Scheldt are criticised, and the project of a new

† The importance of the engineer services in the Russo-Japanese War can hardly be overrated, and it is to be hoped our authorities will see the necessity of giving the R.E. constant practice in peace.—E.G.

* "*Dienst der Truppen bei Angriff und Verteidigung von Festungen*" nach *KASBECK*. "*Mitteilungen des Ingenieur Komitees*," No. 10, 1904.

"*Der Festungskrieg im Lichte der Kämpfe um Port Arthur*," *FROBENIUS*, "*Militär-Wochenblatt*," 13th-15th October, 1904.

fort as high up as Doel, which would command the river right up to the Dutch Fort Batt, is foretold.

In regard to **Germany**, the Report naïvely remarks, after stating that the ramparts of Castel had been levelled: "According to French newspapers, it is intended to demolish the newest part of the Mainz Ramparts, also, viz., the north-west front from where it abuts on the Rhine below the town to the Mombach Gate."

In **France** many of the fortresses in the Pyrenees Frontier, with the exception of the citadels, are being levelled. On the 20th April, 1904, the enceinte of Perpignan was ordered to be levelled, only the citadel and the Lunettes Ruisseau and Canet being preserved. The town authorities have acquired the sites, and undertaken to complete the demolitions within 5 years.

In **Great Britain** the strengthening year by year of the Firth of Forth is mentioned. The command of the entrances from the northern canal into the Firth of Clyde is being secured, which, it says, shows the far-seeing prudence of the British. Lough Swilly, in the north, is also fortified, and Belfast Lough is being taken in hand. "This stands in a similar relation to the Firth of Clyde as Wismar Bay does to the German Naval Harbour, Kiel. It would be well if Germany were to follow Great Britain's example and take seriously into consideration the value of the *Wohlanberger Wick* as a fortified naval station for the German Fleet."

Certain details as to the Kinghorn and Dalmeny Batteries are noticed.

The projected new forts in Belfast Lough to replace the antiquated Carrickfergus Castle are noticed and their position indicated.

Captain Stavenhagen has given a description of the Plymouth and Portsmouth Harbour Defences.*

Russia.—It is reported that Reval is to be constituted a regular Naval Station and Harbour, as it is better suited for this than either Kronstadt or Libau. All the old works will certainly have to be reconstructed, for they have been mostly razed during the 80 years elapsed since the town has been given up to the civil authorities. The necessary railway approaches are also to be taken in hand at the same time as the harbour works.

As soon as the very important Railway approach to India—the line Orenburg-Taschkent—is ready (it is expected to open for traffic during 1905), the third line of communication—the line Taschkent-Tomsk—is to be taken in hand.

The "Head Fortress Committee," replacing the "Armament Committee" of 1892, was appointed in August, 1904, to discuss with the War Office all questions connected with Fortresses, their construction, repair, arrangements, armament, etc., as well as those of Siege Artillery.

United States.—The Fortress Commission has prepared a plan by which new Coast Defences at 27 different points are contemplated. Among them are New York, San Francisco, Baltimore, Philadelphia, and Rhode Island. It seems as if the Americans had abandoned the idea of disappearing carriages, as the new Forts are to be armed with colossal guns in armoured turrets.

*"Die Englischen Kriegshäfen Plymouth und Portsmouth." *Mitteilungen des Ing. Komitees*, No. 10.

ARTILLERY MATÉRIEL IN 1904.

GENERAL.

Progress in re-armament with barrel-recoiling field guns has not come up to expectations or requirements. Political, financial, and other reasons have militated against their introduction. Organisation is now, as ever, a prime factor, and the question of ammunition supply looms large. Tactically and technically how to make the best use of the fire-effect of modern Artillery is still a disputed question.

The "Shield" question may be considered solved. The out-classed Japanese gun has no shield because it is not a barrel-recoiling gun. The Artillery specialist can only regret that neither of the contending Powers in the present war has as yet produced a field gun of such supreme excellence as to make the study of its performance in actual warfare of great value.

The development of the shield question has taken a middle course. Proposals for unwieldy, hinged shields of large dimensions unsuited to war purposes are at a discount. Designers of field guns, and in the front rank the Germans, have met the normal demand of the day for a field gun with sufficiently protecting shields which, when in action, shall not weigh more than 1,000 kilos (19.66 cwt.), and shall be in all respects fitted for war.

As regards Heavy Field Artillery, endeavours are made to combine efficient indirect fire with sufficient mobility, and to produce direct-fire guns with effective flat trajectory, such as the German 10 cm. (3.93-inch) gun. For this the application of the barrel-recoiling principle is probable.

ARTILLERY MATÉRIEL IN INDIVIDUAL STATES, 1904.

Austria-Hungary.—As reported last year exhaustive trials were being made by the Quick-firing Field Gun Committee. In June, 1904, the Committee reported that of eight types of Q.F. field guns tried, not one was satisfactory enough to be taken as a pattern gun for manufacture on a large scale. Those with telescopic carriages failed. The others were found inefficient in stability and suitability for rapid manœuvring.

In September, 1904, the War Minister commissioned the Vienna Arsenal authorities to produce a gun that should serve as a model for the new field gun, combining all the qualities insisted on by the Committee. It was to be delivered for trial by November. There is no report of this having been done. Orders for these guns, which would be confided to Home Industries only, could scarcely be sent out before March, 1905. The re-armament of the Austrian Field Artillery could then be completed in 1907. This would also necessitate a considerable re-organisation of their Artillery.

The following are some of the details of the so-called new 7-cm. (2.76 inch) steel-bronze mountain gun (1899 pattern):

Calibre, 72.5 mm. (2.85-inch).

Weight of gun, 114 kilos (nearly 2½ cwt.).

Weight of shell, 4.7 kilos (10.34 lbs.).

Muzzle velocity, 304 m. (997 f.s.).

Shrapnel bullets, 216 of 10½ grams each (about 44 to the lb.).

The time fuse is marked to 4,000 metres.

The rate of fire is 5 to 7 shots a minute.

Belgium.—The extensive experiments already reported in Belgium were concluded in the spring of 1904. The result was that three of the five contending firms were excluded from further competition, and that the War Minister received a Supplementary Grant of 300,000 francs (£12,000) for further trials of Krupp and St. Chamond systems. The final result is not yet known, but the "*Belgique Militaire*" published certain details of the experiments, which are, however, not quite clear. The two batteries representing the respective systems were to meet again on the Braschaet experimental firing ground in February, 1905, and further practical trials were to be made at the manœuvres this year, and finally at the Beverloo Camp, so that by the end of this year it was expected that a final decision would be come to.

Brazil.—The trials between the Ehrhardt and Krupp guns were concluded last summer in favour of the latter, a 7.5-cm. (2.95-inch) field gun, carrying a shell weighing 12.10 lbs., with a muzzle velocity of 1,607 f.s. The weight of the gun in action is about 14 $\frac{3}{4}$ cwt., or, with a 4 $\frac{1}{2}$ -mm. (.18-inch) thick shield, about 17 cwt. The gun with limber and shields weighs 43 $\frac{3}{4}$ cwt.

Bulgaria.—It is reported that 81 new 7-gun Batteries have been ordered of the Schneider-Creusot pattern. Each battery has 4 guns and 9 ammunition wagons.

China.—The Government is said to have ordered from Krupp a consignment of barrel-recoiling Q.F. field guns of 7.5-cm. calibre, which is to be the uniform calibre for field and mountain guns. This is said to be the outcome of trials held last year between Krupp, Ehrhardt, and Vickers-Maxim Q.F. field guns.

France.—It is intended to introduce a really light Field-Howitzer. The 120-mm. "court" (4.7-inch) and the 155-mm. (6-inch) howitzers are found too heavy to be reckoned on as always being up in time for action when required.

This is said to be a deduction from the experiences of the present Russo-Japanese War. It is intended therefore to try a 10.5-cm. (4.13-inch) light howitzer.

Besides the 68-mm. (2.68-inch) mountain gun mentioned last year, carrying a 13 $\frac{1}{2}$ lb. shell and 17 lb. double shell, a 120-mm. (4.7-inch) gun is to be introduced, carrying a 20-kg. (44-lb.) shell, and made in two parts.† This is for the bombardment of small hill fortresses and fortified posts.

The French Marine Artillery has been much developed of late. Endeavours are being made to increase the velocity of their guns in the hope of being thereby enabled to diminish their calibre.

Great Britain.—The story of the delay of the re-armament of the British Army with the new 18 $\frac{1}{2}$ -pr. Q.F. field gun is repeated in the Report, and the addition of the Pom-poms to the British Cavalry Equipment is again noticed.

The success of the 5-inch heavy B.L. gun is reported.

Italy.—The ordinary practices of the Italian Regiments of Field Artillery are brought to notice.

The following details of the new Italian 7.5-cm. (2.95-inch) field gun are given:—

Weight of gun, 6 cwt. 3 qrs. 14 lbs.

Weight of shrapnel, 14.75 lbs.; weight of common, 13.32 lbs.

†Somewhat like our well-known screw guns.—E.G.

The Heavy Field Artillery consists of a 15-cm. (5·9-inch) gun and a 21-cm. (8·3-inch) howitzer. The weight of the former is $12\frac{3}{4}$ cwt. The new 7-cm. (2·75-inch) mountain gun weighs 1·96 cwt.

Japan.—The events in the Far East brought to light many particulars concerning the Japanese Forces and Armament, about which little was known before. The following details regarding their guns, etc., may be considered reliable.†

Their Field Batteries have 6 guns and 3 ammunition wagons in the 1st line; the 3 other ammunition wagons follow the Division on the march under a senior officer. The 6 limbers carry 40 rounds and the 6 ammunition wagons 90 rounds each. Total shell per battery, 780. Besides these, every Regiment of Artillery†† has a Light Ammunition Column of 27 ammunition wagons. Then the Divisional Ammunition Columns (3) have 27 ammunition wagons each. Altogether the ammunition carried amounts to 400 rounds per gun, in the proportion of 355 shrapnel to 45 common.

The Mountain Batteries are equally provided, only in place of each ammunition wagon they have 8 mules, each carrying 2 ammunition boxes. The field gun is the Arisaka carriage-recoiling gun, with a peculiar (recuperative) spring-brake arrangement for diminishing the recoil and bringing the gun back into firing position, necessitating, however, relaying. It is, therefore, not a quick-firer properly so called, but something like the German field gun of 1896, each gun being able to fire about 5 rounds per minute. It has achieved 10 rounds during one minute of rapid fire, but not continuously. It is a light gun, weighing, limbered up, about 32 cwt. $1\frac{1}{2}$ qrs. This and the track of its wheels (4 feet $1\frac{1}{2}$ inches) made it adaptable to the bad country roads in Manchuria, etc. It fires over about 2 feet $11\frac{1}{2}$ inches. It carries a $13\frac{1}{2}$ -lb. shrapnel with a muzzle velocity of 1,509 f.s. It was designed by General Arisaka, and manufactured by Krupp.

They had at the beginning of the war, 12-cm. (4·7-inch) and 15-cm. (5·9-inch) field howitzers. The former were used with effect at the battle of the Yalu, where there were 20 in action. Their efficiency was testified by a telegram of the Japanese War Minister to Krupp. It carries a 44-lb. shell. The howitzer weighs, limbered up, 39 cwt. The naval guns are chiefly of the Armstrong pattern or manufactured in the Osaka Imperial Gun Factory.†††

Russia.—The Russian Field gun, called the *Putilov*, M/1900, still chiefly used by their Field Artillery in the war; draught weight 37 cwt. 1 qr. 8 lbs. with limber on the march;†††† unlimbered in action about 20 cwt. It is sighted to 7,000 yards, but the fuse is marked for

†The following may be compared with the account of the Russian and Japanese Field Artillery given in the *JOURNAL* for July, 1905, pp. 862 et seq.—E.G.

††1 Regiment = 6 Field Batteries (see the *JOURNAL*, October, 1904, p. 1132) to each Division.—E.G.

†††These are 12, 24, 27, and 28-cm. guns. The Siege Train and Fortress guns were detailed in the *JOURNAL* for October, 1904, p. 1149.—E.G.

††††Lord Brooke states, in "*An Eye-witness in Manchuria*," that though so heavy, they were easily moved about, owing to the excellence of the Artillery horses and their condition.—E.G.

5,600 only. The muzzle velocity is now said by some to be 1,902 f.s., others give it as much less. The recoil is partly taken by the carriage, which jumps, necessitating relaying after each shot.

It is said that the 21st Artillery Brigade in Riga, which had been armed with the new Q.F. field gun, M/1902, of which mention was made in last year's Report, was sent to Manchuria in the place of the 16th Brigade, which was under orders for that country; but the manufacture of the new pattern guns has met with much hindrance for lack of proper machinery, and it is doubtful if any great numbers of these can have been sent to the theatre of war.

Some of the older pattern 1892-5 field guns are still in the Far East. Besides the mountain guns of the old pattern, several new Q.F. mountain guns are said to be there.

SMALL ARMS, 1904.

General.—In the Russo-Japanese War the 3-lined rifle of the former nation (·300-inch calibre) is opposed to the Arisaka rifle (calibre ·256-inch) of the latter. From the experience gained of the use of these in actual war, useful lessons may be drawn.

The calibres of modern weapons vary from 7·7 to 8-mm. (·303-inch to ·315-inch) in seven States, to 7·5 to 7·65-mm. (·296-inch to ·301-inch) in seven States, 7-mm. (·276-inch) in fourteen States, and 6·5-mm. (·256-inch) in seven others. The Mauser system is the most used, then the Mannlicher; the Krag-Jørgensen system takes the 3rd place.

The firm Karl Zeiss, of Jena, has brought out a new stereoscopic range-finder for infantry.

Many experiments are being made to perfect the sighting system. The "universal bead" of Captain Kokotović, of the 10th Hussars, deserves special mention.

PROGRESS WITH SMALL ARMS IN INDIVIDUAL STATES.

Austria-Hungary.—The armament of the Austro-Hungarian Infantry and Rifle Regiments with the repeater rifle, M/1895, is in progress. The Cavalry carry the repeater carbine, M/1895, the Field and Garrison Artillery that of 1895, and the Train Troops the 1890—all are of 8-mm. (·315-inch).

Credit has been taken in the Military Budget for the expense of completing this rearmament and for replacing the Cavalry revolvers by automatic (self-loading and cocking) pistols.

An improved repeater pistol on the Roth system has been experimented with. These are made of two calibres—8-mm. and 7·5-mm. (·315-inch and ·296-inch), with a velocity at 12 metres distance of 869 f.s. and 968 f.s. respectively. (See "*Neue Militärische Blätter*, No. 13, of 24/9/04, for details.)

New indoor rifles and indoor ammunition for practising aiming and hand-and-eye work in barracks, and miniature ranges have been introduced.

Belgium.—The Infantry, Cavalry, Technical Troops, and now the National Guards, carry the 7·65-mm. (·301-inch) Mauser rifle of 1889.

The officers of all arms and the Gendarmerie are armed with the Browning automatic pistol of 1901.

Bolivia, Brazil, Chili, Columbia, Uruguay.—The Infantry carry the 7-mm. (.276-inch) Mauser rifle and the Mounted Troops the carbine of like calibre, both in 1893.

China.—Up to now the armament of the Chinese Regular Troops has been one of multifarious rifles. Now it is ordered that only 7-mm. (.276-inch) calibre of 1,968 f.s. muzzle velocity and 2,000 metres range are to be used.†

Denmark.—The troops are armed with the 8-mm. (.315-inch) Krag-Jørgensen rifles and carbines of 1889.

Major-General Madsen, the War Minister, has invented the *Rekyl* or recoil gun. It is a sort of machine gun carried on a horse and served by 3 men. The weight carried by the pack-horse, including 300 rounds of ammunition, is only 91½ lbs. The ammunition pack-horse carries 6 cartridge bags. The advantages claimed for this class of gun are: its less weight, as it only weighs in itself 13½ lbs.; that it is not much longer than the service rifle; that one man can serve it; and that it can be rapidly brought into action. It offers a smaller target than a machine gun; the gun detachment can easily and rapidly follow all the movements of the body of horse they are attached to, even through woods; and with a rate of fire of 750 rounds per minute and a muzzle velocity of over 2,350 f.s., it is as effective at least as machine guns. It is argued that the possession of this weapon will do away with the necessity for dismounted cavalry action, the loss of the horse-holders, etc.

Every Hussar Squadron in the Danish Army is to have 3 sections of *Rekyl* guns attached.

This recoil gun is to be introduced into the Armies of Norway and Sweden, and experiments were made with it in 1904 in England, France, U.S. America, and Turkey.

Great Britain.—The Report goes into great detail in regard to the new short Lee-Enfield rifle, and reproduces the tabular statement published in England showing the comparative figure of merit of the French, German, Italian, and Lee-Enfield rifles. It states that the whole of the Cavalry Regiments in India, the Infantry on the frontier, and certain Regiments are armed with it, that the Cavalry at home were to be armed with the new rifle in 1904, but that the other troops were to retain the old Lee-Enfield of 1895 for the present.

Italy.—The whole of the Infantry of the Line and the Mobile Militia are armed with the 6·5-mm. (.256-inch) Mannlicher-Carcano rifle of 1891, the Cavalry with the carbine of this pattern. The Territorial Militia or Landwehr has the old Vetterli rifle of 10·4-mm. (.41-inch).

Captain Cei Rigotti has invented an automatic rifle, and a company has been formed in Milan to bring it out.

Japan.—In the beginning of 1903 the Japanese Army was armed with the Meidji†† 30, i.e., 1897 pattern of 6·5-mm. (.256-inch) calibre rifle and carbine as far as the Line Regiments, the Reserve, and the 2nd Line Troops went. The two arsenals in Japan are able to turn out from 700 to 1,000 rifles of the Meidji pattern daily, so, though the

†They will now probably, however, buy efficient rifles cheaply from Japan.—E.G.

††Called also the Arisaka.—E.G.

Territorial Troops were at first only armed with the Murata rifle of 8-mm. (.315-inch), 1897 pattern, there is no doubt sufficient of the later issue were forthcoming for the troops actually engaged in the war.

Sweden.—A number of trials with different revolvers, automatic pistols, etc., took place in 1904. The results were in favour of the Parabellum (Luger) pistol, calibre 7.65-mm. (.301-inch) and the Colt-Browning No. 2 1903 improved pattern,† 9-mm. (.35-inch). Further trials resulted in favour of the latter on the whole, as its action was powerful and reliable; so the Committee eventually reported in favour of that pattern, which, however, they found still needed certain slight improvements to perfect it.

United States of America.—The Regular Forces carry the Krag-Jørgensen rifle of 1902, of 7.622-mm. (.30-inch) calibre, and the Navy still have the Lee of 1895, 6-m. (.236-inch) calibre.

The Ordnance Department has arranged to try the Smith-Conduit automatic rifle. It has a calibre of 7-mm. (.303-inch), and is designed to carry the ammunition of the Springfield rifle. It weighs 3.9 kilos (8.58 lbs.). Its magazine contains 6 rounds. The bullet has a muzzle velocity of 2,098 f.s. This rifle is said to have had 7,000 continuous rounds fired through it without any detriment.

How far the issue of the Springfield improved rifle has been carried is not yet known for certain. It was said that the whole Army was to be armed with it by the 1st January, 1905. Owing to the complicated construction and many parts of this rifle, a large number of those issued have had to be returned to the factory for repairs, etc.

General Rock, who was to have had the new telescopic sighting attachments served out to the troops under his command, begged to have the old sights instead as more reliable.

MILITARY COMMUNICATIONS IN 1904.

Austria-Hungary.—The Report enters into some details of the arrangements made in Austria for mobilisation, and gives the detail of the Railway Staff at Head Quarters and on the line of communications. For the working of the railways in an enemy's country each length of 450 km. (280 miles) is placed under a Railway Military "Direction," with a Director, an Assistant Director, 3 Railway Engineers, 3 Higher Railway Officials, 2 Technical Inspectors, etc. Space does not admit of these being further detailed.

Great Britain.—The Report says that, while the Russians profited by their well-organised and carefully guarded communications, the British suffered much in South Africa from their neglect in the first part of the war, and from the want of a proper traffic organisation. At first none of the generals were acquainted with this. The want of rolling stock was also severely felt. On the occupation of Bloemfontein, 26 locomotives, 342 goods wagons, and 22 passenger coaches were captured. It was not till September, 1900, that 222 locomotives and 4,250 wagons fell into their hands. The Boers made a mistake in not destroying them.

†Colt-Browning pistols (Improved) can be seen at the A. & N. C. Stores, calibre .38 inch.—E.G.

The use of armoured trains is noticed, and it is said that other Powers are considering the question of employing these.

The Report goes into details of experiments with electric railways in Germany, which are highly technical, and which there is not space for.

The Report of the **Trans-Baikal Line** is, however, so interesting, that some details are here epitomised.

Some 7,000 kilometres (4,340 miles) separated the troops in the theatre of war from their Home Stations, and they were supplied by a single line of railway. This line was moreover broken by the great Baikal Lake, for the railway running round it was not yet completed. It was therefore determined to lay the rails across the ice surface of the lake.

Such expedients are no novelty in Russia, where each year the Volga is crossed in many places by similar means, which are also used to connect Petersburg and Kronstadt in winter. Here, however, the difficulties were exceptional, for there was always the danger of the ice opening up suddenly chasms of more than 100 metres in length and 2 to 10 metres wide. In the morning a train might pass over safely. By midday or the afternoon a great fissure was formed engulfing rails and sleepers. Where these were not too extensive, attempts were made to close them by wedging up with floes of ice and letting great ice-blocks freeze in.

On the 1st March, 1904, the line connecting the two stations Baikal and Tanskoï was ready for the transport of the traffic material. The same day 100 laden wagons were transported to the lake and drawn at distances of 117 m. (128 yards) by at first four horses, afterwards 2 horses each. By the next day 20 wagons had been conveyed to Tanskoï, and from that time the work progressed steadily, so that by the 14th 1,300 wagons had been conveyed across. Getting the locomotives over was, however, more difficult work. On the 15th March an immense gap was formed and the work interrupted. On the 28th, 28 laden goods wagons and 10 passenger coaches were passed over.

It was expected that ice 3 feet to 4½ feet thick would bear locomotives; but with an old 30-ton engine the attempt failed, as the front wheels began to sink at once, and it was with difficulty pulled back to the shore. The 45-ton engines were therefore taken to pieces and carried across in wagons. On the 27th March the rails laid on the ice were removed.

In the course of a month 2,313 open and closed goods wagons, 25 passenger coaches, 65 locomotives, about 24,570 tons of goods, and over 16,000 tons (in sledges) had crossed.

Until the western half of the Baikal Circuit Railway was completed, when the ice broke up, the troops and supplies had to cross by the two ferries. In 24 hours only from 1,000 to 1,200 persons could be conveyed across.

On the 25th September the Circuit Railway was opened. The total length was 260 kilometres (about 163 miles); the maximum gradient, 1 in 125; the weight of the rails, 3,424 kgm. (about 70 lbs. per yard); the total width of the permanent way was about 17½ feet. The stations were built of wood, the sheds of brick. The bridges were of iron or with stone piers, the roadway of brick or of stone and iron. The tunnels (33) left room for a double line of rails, but only a single line was laid.

The watering stations provided for 14 trains both ways in 24 hours. Only 7 trains each way can, however, at present be run. In fact, rarely more than 5. But as the line was not to be completed till 1905, the work done is remarkable. Assuming that the Trans-Siberian Railway can run 7 trains a day, the Baikal circuit line can then take five-sevenths of the traffic on, thus avoiding breaking bulk.

The Trans-Siberian Railway.—This Railway being only a single line with few transfer stations, sidings, etc., could hardly cope with the sudden heavy strain brought to bear on it by the war. The permanent way was very slight, as the Russian idea was to complete the railway as quickly as possible in view of its being likely to be very soon needed. Improvements were to be made as soon as possible. In fact in the summer of 1904, 58 sidings were laid down.

On the 13th October at a conference held at Petersburg it was decided to lay down a second line of rails.

The importance of the ORENBURG-TASCHKENT line is discussed in the "*Invalide Russe*" as follows: "Russia is obliged to keep in Turkestan considerable forces to protect its possessions in Central Asia, and to neutralise certain unfavourable phases in International politics. The great increase in the fighting power of all nations makes it difficult to be able to reckon on achieving decisive success with the troops in the Turkestan Command alone, however excellent their military qualities. These must therefore be looked on as an advanced guard pushed forward to cover the concentration of the main Army. In view of the great distance of our Central Asian possessions from the centre of Russia, the timely despatch of reinforcements is of the utmost importance.

"If we regard the importance of the Orenburg-Tashkent line from this point of view, we may now consider our task in Central Asia so much lightened that we may look to the future with equanimity.

"We can now in the shortest time and in any season of the year push forward considerable forces right into the heart of Asia, should the course of political events require this step. Let us hope it may not be necessary."

The Russian Military Railway Organisation is, according to the "*Internationale Revue*," a very complete one. There are now 12 Railway Battalions; 4 are in Russia, 4 in Asia. Each of these has 6 companies and 1,969 men. The European Battalions have 5 companies. The 5th Company of each is to be formed into a Reserve of 4 companies in war time. The peace strength of each battalion is 37 officers, 1,045 combatants, and 67 non-combatants. The Battalions are Brigaded, 2 or 3 Battalions forming a Railway Brigade.

In war the whole are placed under a Chief of the Railways, who is subordinate only to the G.O.C. Line of Communications.

MOTORS.

With the exception of Russia, every country in Europe is now provided with a network of excellent roads which favour the development of military motor traffic.

In **Austria-Hungary** the formation of a Landsturm Automobile Corps has been formed in connection with the Austrian Automobile Club

to further improvements in military motors and to train in peace motorists for war.

In **France** no information is to hand of such an organisation; but as motors are so much used there, there is no doubt of their adaptation to war purposes, and that in war they would play a great part. The French War Office has instituted many competitions, buying up the successful motors, and each Army Corps has at least one motor of 24-H.P., and a lighter one of 12-H.P., so that even in peace time a respectable number of motors could be got together.

In **Germany** the *Deutsche Automobile-Freiwilligen-Corps* has been formed. The conditions are: (1) German subject; (2) the possession of a motor of at least 16-H.P.; (3) possession of a certificate of competence to drive a motor. Three exercises of 10 days each in 4 years must be attended.

In **Great Britain** the British Motor Volunteer Corps has been raised by Lieut.-Colonel Mayhew. In war it is to consist of 1 Lieut.-Colonel, 6 Majors, 19 Captains, 19 Lieutenants, 1 Adjutant, and 155 drivers. The Head Quarters are in London, with detachments at Aldershot, Salisbury, York, Edinburgh, and Dublin.

Every member must possess a motor and attend a 10 days' practice, for which he receives the slight remuneration of £2 a day. This Corps has been increased by the addition of 40 motor cyclists.

During the Marlborough manœuvres in 1903† 43 motors and 31 motor cycles took part, and the Essex manœuvres in 1904 were attended by 46 officers who are members of the corps.

In **Italy** an Automobile Corps is said to have been raised.

SELF-DRIVING MOTORS (*Automobiles*).

The Report says neither the Paris Exhibition nor that at St. Louis in 1904 brought to notice any novelties in principle. The automobiles shown seek to develop higher excellence, greater safety, and less noise and shaking, and to produce a trustworthy, efficient normal pattern machine, specification as follows: a multi-cylinder benzine motor of from 12 to 28-H.P. with a removable hood, with a water-cooling apparatus; the frame long and of compressed steel; the wheels of wood and of equal diameter.

The tyres are now improved and more durable; non-slipping contrivances are attached. Experiments were made in the Harz and Thuringian Forest to test these in snow.

Steam motors are gradually giving way to explosive motors, for the latter can now be made as noiseless and steady as they were without their disadvantages. Electric cars are not adapted to military purposes, as they can only travel about 50 to 75 kilometres (31½ to 47 miles) without being recharged.

The German Administration is experimenting with a light self-driving car for messengers on narrow and mountain roads, to hold 2 persons only (including chauffeur). Its weight is to be as little and its "track" as narrow as possible, so that it may go wherever a one-horsed light 2-wheeled cart can. On a good level road 40 kilometres (25 miles) an hour is all that is expected of it. The lowest part of the car is to be 10 inches above the level of the road.

†Is this not meant for 1898?—E.G.

TRACTION MOTORS.

Mechanical traction is still the most interesting of military problems, says the Report, which gives a number of interesting details there is not space for here. It may be taken, it says, that about 6 tons is the maximum useful weight of these machines (exclusive of the weight drawn). Under favourable conditions of roads and weather the German Army traction motor, pattern 1903, exhibited in Frankfurt on the Main in March, 1904, was able to do in the day's work 600 ton-kilometres. It is a powerful motor, drawing on the level two attached wagons.

A light motor weighing about 3,500 kilogrammes (nearly $3\frac{1}{2}$ tons) is now constructed, which can carry 2,500 kilogrammes ($2\frac{1}{2}$ tons) and draw a weight of $3\frac{1}{2}$ tons. It is a manageable machine, and can be used over all ordinary bridges.

Austria-Hungary.—The traction motors used are lighter than the German, because the roads are narrower. The traction motor weighs 2,800 kilos ($2\frac{3}{4}$ tons), and can carry 2,000 kilos. (1.96 tons). The motor is a 4-cylinder benzine one of 36-H.P. It can, however, be also driven with alcohol. Each of the 2 attached wagons weighs 600 kilos. ($11\frac{3}{4}$ cwt.), and can carry 1,900 kilos. (about $37\frac{1}{4}$ cwt.).

France.—In the summer of 1904 the French War Minister offered a prize for traction motors for the Intendance to transport provisions and other material.

The trials were to take place near Paris over a course 500 kilometres long (310 miles). Conditions were:—

1. Steam or benzine, petroleum, alcohol, etc.
2. Total weight of traction motor, 3,400 kilos., $3\frac{1}{4}$ tons (including 1,600 kilos. load).
3. 12-H.P. or over.
4. Three rates, from 3.5 to 18 km. ($2\frac{1}{4}$ to $12\frac{1}{4}$ miles) an hour.
5. Radius of action, 75 km. (47 miles).
6. "Track" (gauge of wheels) not above 2 metres ($6\frac{1}{2}$ feet), wheels, 8 feet diameter.
7. Price not exceeding 8,500 francs (£340).

The trials having been postponed no report is available.

Great Britain.—Experiments are, it is said, being made with traction motors up to 6 tons in weight.

Russia.—Experiments have, it is believed, been made with a traction-motor specially designed for service in the Far East. It is intended to forward several of these to Manchuria. Panhard-Levassor have supplied it. It is of 36-H.P. The motor power functions on the Renard principle with attached electro-motors.

MOTOR CYCLES.

These are of great military use, but are dependent on roads and weather. Much improvement has been made in them during the past year. A despatch was conveyed in September, 1904, from Stuttgart to Kiel, a distance of 770 km. (about 481 miles), in 20 hours 32 minutes.

Their advantages are:—

1. 50 km. ($31\frac{1}{4}$ miles) can be covered in $1\frac{1}{2}$ hours, as against 3 hours with an ordinary bicycle.
2. Owing to its wider tyres the motor cycle can travel over bad tracks, such as sandy roads, etc., which an ordinary cycle cannot.
3. The motor cycle easily works up gradients and against head winds that exhaust the rider of an ordinary bicycle.
4. It is less fatiguing to the rider.

Their defects are:—

- a. Heavier weight; greater cost.
- b. Less certainty.
- c. Greater demands on technical skill and presence of mind, in view to the greater danger of "skidding."
- d. Greater noise in use, thereby easily betraying their approach to an enemy.

The usual touring motor cycle is of about 3-H.P., the receiver holding about 1 litre ($1\frac{3}{4}$ pints) suffices for a distance of 200 km. (125 miles).

The following are requirements for improved military motor cycles:—

1. A better strap, as in wet weather the present ones are defective.†
2. A more reliable ignition method; it should be automatic.
3. Better tyres; some reliable non-slipping arrangement.

Motor cycles were used in the German, Austrian, French, and British manœuvres by despatch messengers.

The Report gives several reasons for objecting to the use of alcohol, which, it says, is inferior to benzine. But it says the French sing the praises of the former. Further experiments are required, the German Report says, to find out a perfect substitute for benzine, or some effective combination for the purpose.

(To be continued.)

†A new improved strap has recently been patented.—E.G.

MANUAL ON THE CONSTRUCTION AND DESTRUCTION OF COMMUNICATIONS.

(4th Edition.)

Issued by command of the Japanese War Office in January, 1903.

*Translated from the Russian by Major P. H. du P. CASGRAIN, R.E.
Communicated by the General Staff.*

NOTE.--This Manual was translated from the Japanese under the Editorship of Lieut.-Colonel Adabash, of the Russian General Staff, and has been re-translated from the Russian version.

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Preliminary Remarks.

1. The instructions contained in this Manual are intended to serve as a guide for the use of the troops employed on the construction and destruction of roads, railways, telegraphs, and other means of communication in time of war.

2. The restoration of communications is carried out by parties of engineers specially equipped for the purpose.

3. The destruction of communications to delay the advance of the enemy is also carried out by the engineers.

4. The restoration or destruction of the permanent way of railways is considered to be the most important work on communications.

5. The destruction or laying of telegraph lines is also a very important work.

6. The circumstances under which roads, railways, and telegraphs should be destroyed are described in the "Field Service Manual."¹

7. For the destruction of railways the engineers carry explosives, with the necessary means of ignition and detonation. The method of using them is described in detail in the "Manual on the Use of Explosives in the Field."

¹ P. 38 of the English translation, issued by the General Staff in December, 1904.

Roads.

8. The duties of the engineers accompanying an Army in the field are described in the "Field Service Manual."

9. In the restoration or destruction of roads, the nature of the work depends on the:—

- a.* Length and width of the road.
- b.* Character of the soil.
- c.* Climatic conditions.
- d.* Gradients.
- e.* Number of rivers and streams intersecting the road.
- f.* Materials at hand for repairing the road.

10. Roads are temporarily or permanently repaired according to the time available.

11. On the march, the engineers move ahead of the main body, and are accompanied by a train carrying bridging materials and all the tools required for the repair of roads and bridges.

12. The engineers are also charged with the execution of the works required to strengthen a position.

13. In repairing a road it is most important to bear in mind what troops will use the roads, *i.e.*, cavalry, artillery, or wagons, and to repair the road accordingly.

14. The manner of repairing a road varies according to the nature of the locality through which it passes, *i.e.*, according to the presence or absence of wood and water, and according to whether the country is open, close, or covered with snow.

15. When rock is met with, rendering it difficult to repair the road, a deviation should be made.

16. While the road is being repaired, the engineers should send a small party on ahead to reconnoitre the road.

17. When a road passes over marshy ground, before commencing to repair it, side ditches should be excavated to drain away the water. In making these ditches the soft earth at the surface should be cut away until firm ground is reached; the ditches are then filled with stones to form "French" drains, as shown in Fig. 1. Stout stakes are driven in the bottom of the ditches, on both sides, to form supports for a plank covering, which prevents the earth from falling in and choking the drains.

18. In places where water collects and forms pools, drains should be provided to lead it away.

19. The width of a road should correspond to the traffic; for instance, a road for wagons should be 2.5 metres (8 feet 2 inches) wide.

In Fig. 2 the earth from the side drains is not used to form the road, but is banked on either side. The road itself is formed of logs and fascines covered with gravel or sand; the logs are laid longitudinally along the road, parallel to one another, and 75 metre (2 feet 6 inches) apart, and the fascines are laid transversely over them and close to one another, and are covered with a layer of gravel or sand, which is retained on both sides by ribands formed of continuous fascines firmly held in position by means of pickets driven along their outer edges.

20. In Fig. 3 planks are used instead of fascines, and they are covered with a layer of gravel or sand, as in Fig. 2.

Fascines may be used instead of logs to form the longitudinal sleepers. The layer of sand or gravel forming the roadway should always be retained by ribands, as described above.

21. When a road is to be exposed to the traffic of heavy wagons, a narrow roadway may be formed of baulks and stout planks, as shown in Fig. 4. The baulks are laid across the road like sleepers, and the planks are laid longitudinally over the ends of the baulks and spiked to them, so as to form two parallel and continuous gangways, each 3 planks wide and 1.5 metre (4 feet 10 inches) apart. A fourth plank is laid over the outer edges of the gangways and spiked to them to form a riband. The space between the gangways is then filled with broken stone and fine gravel and well rammed. In Fig. 5 the outer edges of the gangways rest against wedges spiked to the ends of the baulks.

[*Note by Major Casgrain.*—The description does not mention that sidings should be provided at intervals, although they would doubtless be required with such a narrow roadway.]

22. When a road passes over stony and uneven ground, difficult for wagons to travel over, it is better not to break up the stones, but to fill up the irregularities with earth and gravel.

23. When a road has to be made along the face of a steep and rocky hill, it may be necessary to support the road on a strong timber staging, as shown in Fig. 6.

A staging of this description may be made to carry infantry, cavalry or wagons. To erect the staging a ledge is cut along the face of the hill where the rock is softest, and a wall-plate is laid over this ledge to support one end of the cross-beams, the other end resting on square timber uprights, to which they are further secured by diagonal braces. Five road-bearers are laid longitudinally over the cross-beams, and are covered over with planks to form the roadway, which is provided with a railing. The width of the staging varies up to 3 metres (9 feet 9 inches).

A steep hill may be ascended by means of zigzags. To form the zigzags without disturbing the natural surface of the hill, earth is brought from elsewhere and spread to form an embankment, which is retained by means of fascines resting against pickets driven in the ground in front of them, as shown in Fig. 7.

The distance between the zigzags, measured along the slope of the hill, should be from 25 to 50 metres (27 to 54 yards). (Fig. 7.)

24. When the natural surface of the hill is sufficiently firm, earth need not be carried to form the zigzags, which may be made by cutting and embankment.

25. When a road has to be made over rocky ground, covered with boulders, the larger stones should be removed and the irregularities filled up with sods and earth.

26. Marshy places covered with shallow water may be crossed by forming an embankment of large stones or tree stumps, with small stones to fill the interstices. The embankment is then covered with brushwood, over which a layer of gravel is spread.

The various methods of crossing places covered with water are described in the "Instructions in Pontooning."

27. Soft or swampy places may be crossed by making a corduroy road of logs. The logs should be laid close to one another and should be covered with a layer of gravel.

28. To make a road through a wood for infantry or cavalry it is sufficient to cut an opening in the required direction and to cut off the branches of adjoining trees which obstruct the opening.

If the road is for wagons, not only must the trees be cut down, but their roots must be grubbed up and a proper road formed by laying branches across the bed of the road and covering them with earth and gravel.

Fords.

29. Fordable rivers need not be bridged. The following depths are fordable:—

For infantry	-	-	0·8 metre (2 feet 7 inches).
For cavalry	-	-	1 metre (3 feet 3 inches).

Guns, limbers, or wagons containing ammunition should be ferried over on small rafts, towed by hand or by horses, from one bank to the other.

30. The engineers should clear the bed of the ford of large stones and snags, and should improve the approaches by constructing wooden ramps on both banks.

Small Bridges.

31. When a river is not fordable, a passage may be effected by constructing a small and very narrow trestle bridge. The width required for infantry in single file is 0·1 metre (3·9 inches), say 4 inches; for cavalry (the horses swimming and the men leading them by the rein), 0·15 metre (6 inches). For artillery, two bridges, each 0·2 metre (8 inches) wide, one for each wheel, should be constructed. For siege artillery, the bridges should be 0·3 metre (11 inches) wide.

Railways.

32. The three component parts of a railway, above the formation level, are the ballast, sleepers, and rails. Fig. 8 gives an elevation and section of a rail.

The ballast is used for the purpose of distributing the pressure from the trains over as large an area as possible of the road bed. It is laid in two layers, the lower layer being spread over the formation level and underneath the sleepers, and the top layer laid between the sleepers.

The sleepers should be made of pine, oak, or other hard wood. The dimensions of a sleeper are as follows:—Length, 2·13 metres (6 feet 11 inches); breadth, 0·23 metre (9 inches); thickness, 0·11 metre (4½ inches).

The weight of sleepers is as follows:—

Beech	-	-	-	-	50 kilos (110 lbs.)
Oak	-	-	-	-	35 „ (77 lbs.)
Pine	-	-	-	-	30 „ (66 lbs.)
Maple	-	-	-	-	25 „ (55 lbs.)

The length of the rails ranges from 6 to 9 metres (18 feet 9 inches to 29 feet 3 inches), and the weight from 25 to 37 kiloes (55 to 81 lbs.) per lineal metre (3 feet 3 inches).

For plate-laying, when a long line is to be laid, 6 to 8 men per rail should be allowed, and for a short distance, 8 to 10 men.

The sleepers should be notched under the junctions of the rails, and the notch should be formed so as to slope slightly inwards. The rails may be made of iron or steel.

33. Fig. 9 shows how rails are connected to one another when both ends rest on a sleeper; in Fig. 10 the junction lies between two sleepers.

Fish-plates and round bolts and nuts are used to connect the ends of the rails to one another. The rails are spiked to the sleepers with dog-spikes. The sleepers are laid at right angle to the axis of the line.

Figs. 11, 12, and 13 show various methods of spiking the rails to the sleepers. In Fig. 13 the notch made in the sleeper has an inward inclination of $\frac{1}{16}$.

Two fish-plates and four bolts and nuts should always be used to connect the ends of the rails to one another.

34. Fig. 14 shows a switch, by means of which a train can pass from one pair of metals to another. A switch comprises a pair of points and a crossing, and usually consists of 4 rails, 2 of which are fixed, while the 2 others are fixed at one end and movable and sharp pointed at the other, and are known as points. The points are connected together by connecting rods, and are moved to right or left by means of a point-rod, which is actuated by a counter-weighted ground-lever marked B in Figs. 14 and 15.

Switches of this description are termed automatic switches. Fig. 16 gives a plan of a crossing.

35. When making a railway through a wood, it is not necessary to grub up the stumps of the trees which have been felled to make way for the line.

Side drains 0.5 metre (20 inches) wide should be excavated on both sides of the road-bed. (Fig. 17.)

The gauge of European railways is 1.435 metre (4 feet 8½ inches); Japanese railways, 1.067 metre (3 feet 6 inches); Russian railways, 1.523 metre (5 feet).

For a military railway, curves with a radius of 500 metres (546 yards) are permissible; for an ordinary railway the usual radius of curvature is 2,000 metres (2,184 yards).

36. The construction and equipment of a railway depend on the traffic which the line is intended to carry.

Railways are constructed by engineer troops specially equipped for the purpose with all the necessary tools and explosives.

37. Explosives are largely used in the construction of railways in a hilly country. Their use is described in the "Manual on the Use of Explosives in the Field."

38. The earth required to form the embankment of a railway may be carried by hand or in small trolleys. If the latter are used, a temporary line, constructed of portable rails and sleepers, must be laid. There is, however, no necessity for laying the temporary line along the whole length of the railway. Part of it can be dismantled as soon as the embankment is formed, and then relaid further on, and so on. The gauge of a temporary railway of this description is 1 metre (3 feet 3 inches).

The railway battalions should carry in their field parks portable railway curves of various degrees of curvature, connected to sleepers, in rail lengths ready for use.

39. In constructing a railway along a curve, particular attention should be paid to the plate laying, care being taken to raise the outer rail above the inner one sufficiently to counteract the degree of curvature.

40. Railway construction includes the repair of an existing line as well as the construction of a new one.

In constructing a railway, particular care should be taken that the rails are connected with the sleepers with sufficient solidity.

The degree of solidity required depends on the nature of the traffic, the speed of the trains, and the character of the earthwork.

Construction of Temporary Railway Platforms.

41. To detain or entrain troops or stores, temporary platforms are constructed of any material at hand.

The construction of such platforms depends on whether they are intended for infantry, cavalry, or artillery.

42. Rails and sleepers are the materials used to construct the platform and ramp combined, shown in Fig. 19. The sleepers are connected together in pairs by means of dog-spikes, and are sunk vertically in the ground at intervals of 2.5 metres (8 feet 2 inches) between each pair. The rails are laid with one end resting on the top of the sleepers and the other on the ground, and are covered with sleepers laid at right angle to them and touching one another.

The dimensions are given in the figure.

Fig. 20 shows a platform and ramp combined made of earth revetted with planks resting against sleepers driven in the ground in front of them. The earth is brought from elsewhere in order not to disturb the natural surface of the ground near the platform.

Fig. 21 shows a platform constructed over uneven ground.

43. To facilitate entraining and detraining at night, the platforms should be lighted by means of torches fixed to high poles.

44. Fig. 22 shows a very simple form of ramp made by laying rails over an axle-tree to form an inclined plane, and covering them with planks.

Portable Railways.

45. All the parts of a portable railway, *i.e.*, the rails, sleepers, etc., should be very light.

The gauge is 0.6 metre (23.6 inches). The rails are 2 metres (6 feet 6 inches) long, and are usually permanently connected with 3 sleepers ready for use. (Fig. 23.)

46. The line is laid directly over the natural surface of the ground, a route being selected which conforms to the lie of the ground. The line is usually laid in rail lengths, the rails being connected with the sleepers beforehand. The rails are bolted to the sleepers, which are of metal. (Fig. 24.)

47. Portable railways are laid by the Engineer Railway Corps, who should carry in its field park all the plant necessary for their construction.

48. When a long line has to be laid, it is not necessary to lay the whole of it at once; the line may be laid in sections, and the sections taken up and relaid as required.

49. The Engineer Railway Corps should carry in its field park, curves of various degrees of curvature, connected with sleepers ready for use, as shown in Figs. 25 and 26.

50. In laying the line, the rail lengths (a pair of rails connected to 3 sleepers) are hooked to one another, the ends of the rails being prepared for that purpose, as shown in Fig. 27.

51. Sidings (Fig. 28) should be made at every 2 or 3 kilometres ($1\frac{1}{4}$ to 2 miles), and should be provided with switches and crossings to enable the trains to pass from one pair of rails to the other.

When one pair of rails is higher than the other, the end of the higher rail is connected to the lower rail, as shown in Fig. 29.

The crossing should be provided with wing rails and a triangular nose piece.

52. For the maintenance of the line, one ganger should be allowed to every 1 to 2 kilometres ($\frac{3}{4}$ to $1\frac{1}{2}$ miles), and he should be supplied with ganger's tools.

When the length of the railway is considerable, a telephone line should be constructed alongside of it.

Particular care should be taken to apply the brakes when going down steep gradients.

Telegraphs.

53. In addition to the telephone line referred to in para. 52, telegraphic communication should be established between the different parts of the theatre of operations by means of field telegraphs. Their construction is described in the "Manual of Military Telegraphs."

54. There are two kinds of telegraph lines, viz., field lines, supported on light poles, placed at 75 to 80 paces interval, and permanent (Government) lines, supported on posts.

55. The materials required to construct telegraph lines, viz., poles, wire, insulators, and instruments are carried in the field train of the Engineer Telegraph Corps.

56. Of these materials, the most important are the poles, insulators, and wire.

The poles should be sunk in the ground to one-sixth of their length.

The diameter of the wire ranges from '002 to '003 metre ('07 inch to '11 inch), or according to our nomenclature, from No. 15 Standard wire gauge to No. 11 S.W.G.

57. Fig. 30 shows the normal method of jointing wires of similar diameter. Other methods suitable to wires of different diameters are given below. (Fig. 30.)

The insulators are made of porcelain or glass. The wire is fastened to the insulators by means of a smaller wire, as shown in Fig. 31. Fig. 32 shows a method of jointing a field line to a Government line, the wires being of different diameter, and each fastened to an insulator. The diameter of the jointing wire is '002 metre (No. 15 S.W.G.).

Destruction of Telegraphs.

58. The destruction of telegraphs is carried out at the same time as the destruction of railways, and is also entrusted to the engineers.

59. The engineers charged with the destruction of the railways and telegraphs must also destroy the bridges. (The destruction of the

latter is fully explained in the "Manual on the Use of Explosives in the Field.") *No telegraph line should be destroyed except by order of the C-in-C.*

60. To enable the engineers to carry out the above-mentioned demolitions, every engineer unit is equipped with explosives and the necessary means of detonation and ignition.

61. To destroy a railway, the permanent way should be taken up and destroyed, or if there is water near it may be thrown into it and sunk.

62. When time presses, a railway may be rendered temporarily unfit for traffic by destroying the railway and telegraph stations, and by placing large stones on the line in the tunnels, and if the line passes through a wood, by felling trees across it.

Destruction of Fords.

63. A ford may be rendered impassable by covering its bed with boards with large nails projecting from them, or by simply placing snags in the bed of the ford.

64. Fougasses may also be laid in the bed of the river, as described in the "Manual on the Use of Explosives in the Field."

Demolition of Railways.

65. The most important points to demolish in railways are the junctions and some portion of the line at every kilometre ($\frac{1}{8}$ mile).

The switches should be moved so as to derail the trains.

66. To take up the rails a special kind of crow-bar is used to draw the spikes which fasten them to the sleepers. The claw of this crow-bar is made to grip the head of the spikes, and the handle is used as a lever to draw them.

Rails may also be destroyed by using explosives.

67. The simplest way of derailing a train is to unscrew the nuts of the bolts of the fish-plates connecting the ends of the rails to one another.

Destruction of Railway Stations.

68. In the destruction of railways it is essential to destroy the railway stations.

Besides the destruction of the station buildings, the watering arrangements and any spare locomotives standing at the stations should also be destroyed. The line itself should be obstructed with stones and the switches removed.

69. It is particularly important to destroy the junction stations. Where the line has been destroyed, infantry should be posted in ambush to fire into the train when it comes to a standstill.

70. If there be running water near the railway, it may be diverted so as to flood the line.

Destruction of Telegraphs.

71. To destroy a telegraph line, the wires should be cut in several places, or they should be placed in contact with one another by means of smaller wires, as shown in Fig. 34.

72. In the destruction of telegraphs, the offices and the subterranean lines should be destroyed first.

73. If a subterranean line is laid at about 1 metre (3 feet 3 inches) below the surface of the ground, the test-wells with test-boxes should be destroyed.

Field Observatories.

74. To establish communication between the different parts of the theatre of operations, field observatories are erected and signallers are posted in them.

75. In erecting these observatories it is usual to make use of trees, both on account of the concealment which they offer, and the solidity which they give to the scaffolding. (Fig. 35.)

76. Observatories usually consist of 3 or 4 platforms, the highest of which should be 1.5 metre (4 feet 11 inches) square.

When an observer requires to be posted at a considerable height above the ground, the observatory is constructed by erecting the platforms in succession one above the other, the spars forming the uprights being lashed end to end until the required height is attained. (Fig. 36.)

77. Observatories should, as far as possible, be erected on high ground.

Signal Stations.

78. Communication between such field observatories or signal stations is maintained in daytime by flashing with helios or signalling with flags.

79. At night flash-lights or signalling lamps are used.

Improvised Ramps for Entraining and Detraining Troops.

1. To entrain or detrain troops, various kinds of ramps are improvised; their construction depends on the troops for whom they are intended. Their length varies up to 6 metres (19 feet 6 inches).

2. Ramps for horses should be 2.5 metres (7 feet 4 inches) wide, and may be made by using 3 rails and planks to form an inclined plane, as shown in Figs. 38 and 39; for wagons, 4 rails should be used, and the width of the ramp should be 4 to 6 metres (13 feet to 19 feet 6 inches); for infantry, only 2 rails need be used. (Figs. 40 and 41.)

3. To form a ramp with 3 or 4 rails, the rails should be laid with one end resting on the sill of the door of the wagon, and the other end on the ground, resting against a board sunk edgewise in the ground and held in position with 2 pickets.

4. When the ramps are intended for wagons, stouter planks should be used to cover the rails.

5. For very heavy wagons, 9 rails should be used, viz., 3 in the centre laid close to one another and 3 on either side laid at wider intervals apart, so as to form a ramp 4.5 metres (14 feet 8 inches) wide.

6. When the vehicles are flat open trucks, there is no need of providing a separate ramp to each truck. It is sufficient to provide one ramp and to bridge over the intervals between the ends of the truck, as shown in Fig. 44.

7. On a high embankment, where it would be inconvenient to use a side ramp, an end ramp is used. To make an end ramp, a sleeper is laid across the end of the last truck, and the ends of the

The thin figures are metres.

Fig. 30.



Fig. 31



Fig. 32

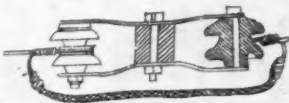


Fig. 33.

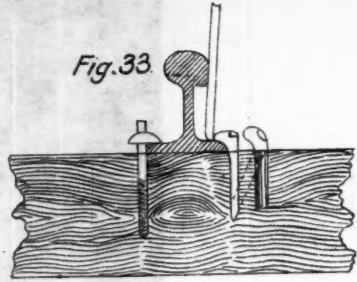


Fig. 34.

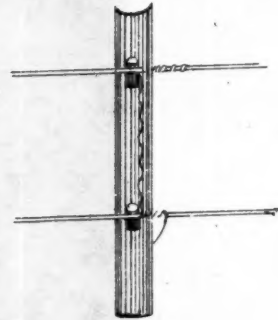


Fig. 35.

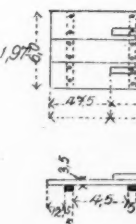
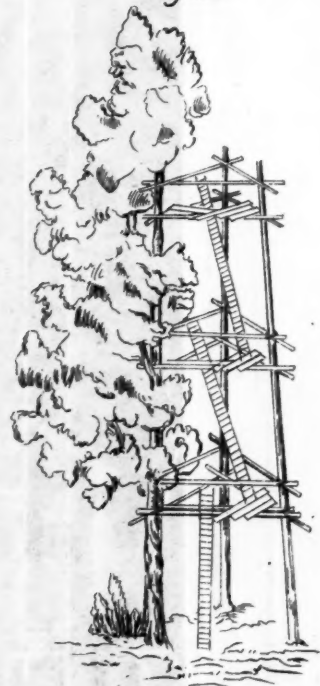


Fig. 36

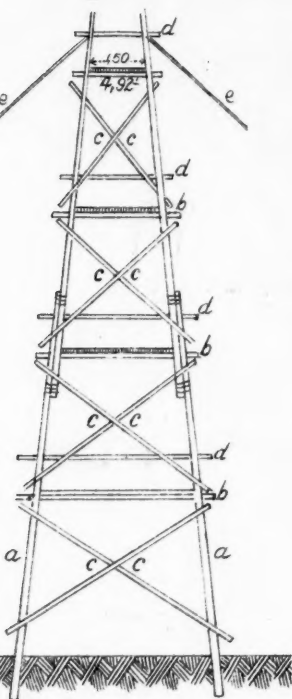


Fig. 38.

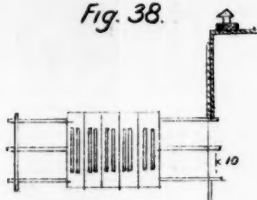


Fig. 42.

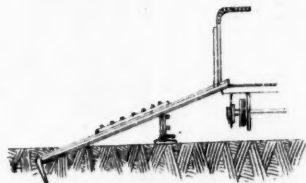
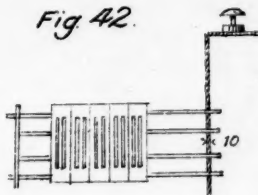


Fig. 39.

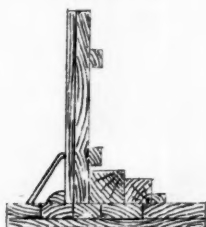


Fig. 43.

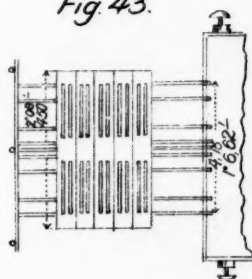


Fig. 44.



Fig. 37.

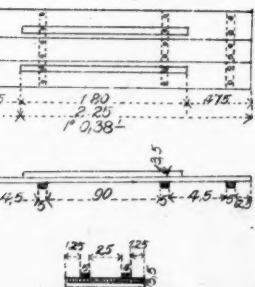


Fig. 40

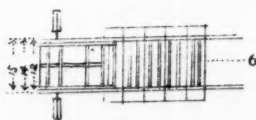
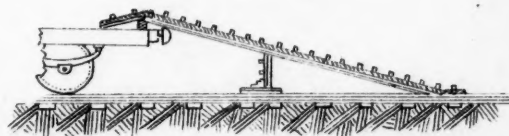
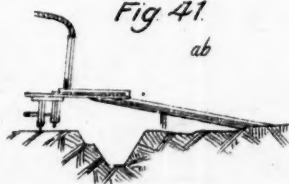


Fig. 45.



Fig. 41.



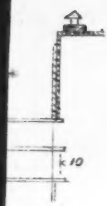


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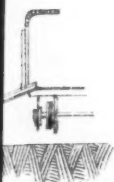
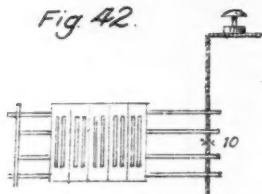


Fig. 43.

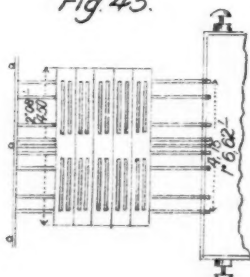


Fig. 44.

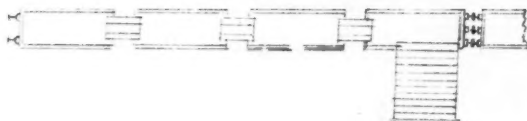


Fig. 45.

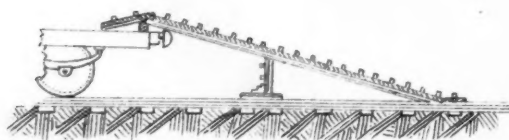
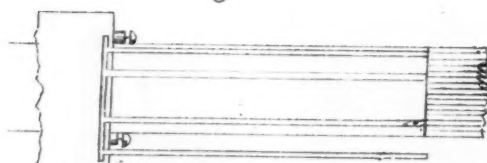


Fig. 46.

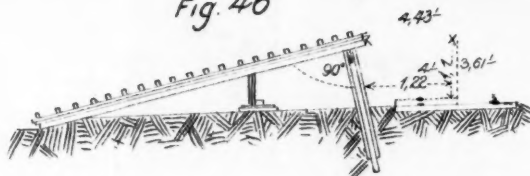


Fig. 47.

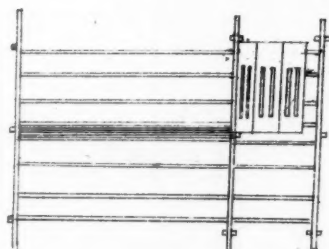


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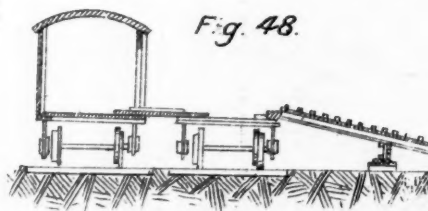


Fig. 49.

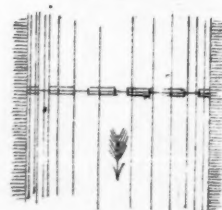


Fig. 50

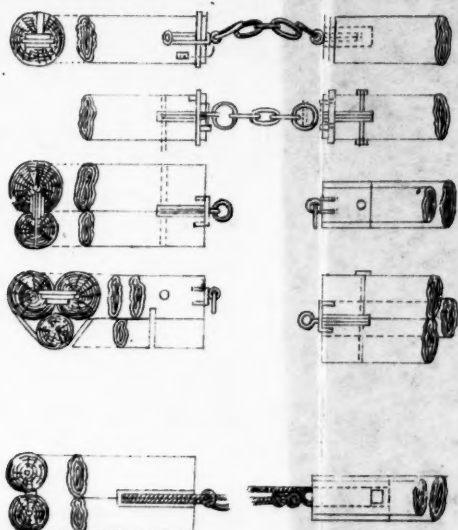


Fig 51

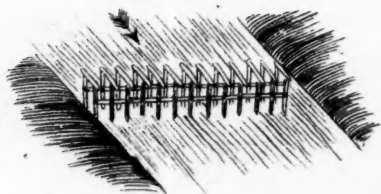


Fig 52

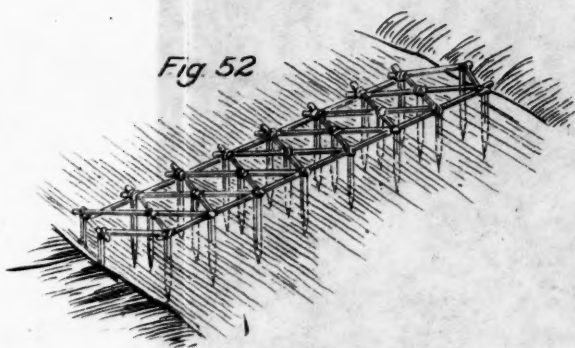


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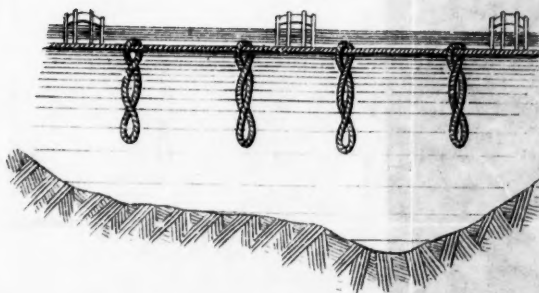


Fig. 1

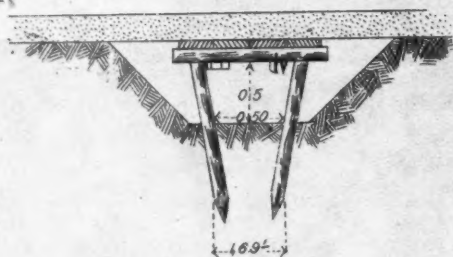


Fig. 5.



Fig. 2.

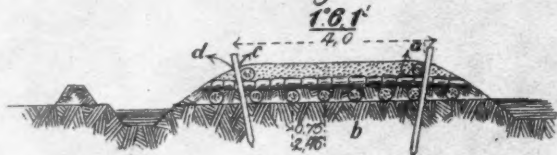


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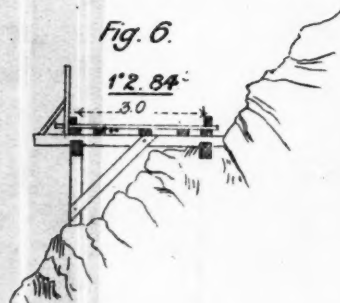


Fig. 7.



Fig. 3

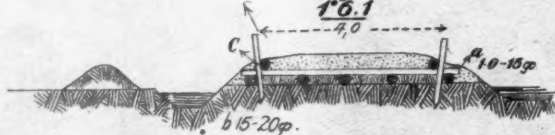
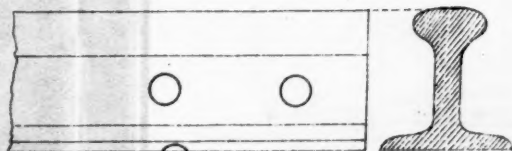


Fig. 4.



Fig. 8.



The thin figures are metres.
" " " " Russian units.

Fig. 9.

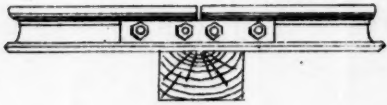


Fig. 10.

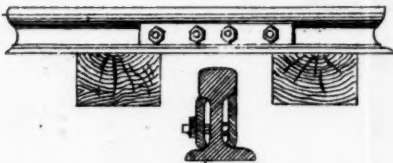


Fig. 11.

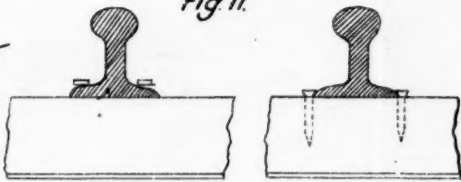


Fig. 12.

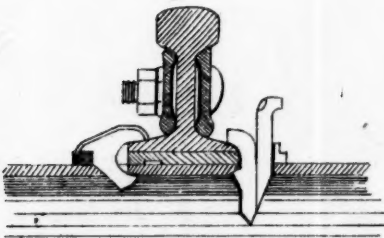


Fig. 13.

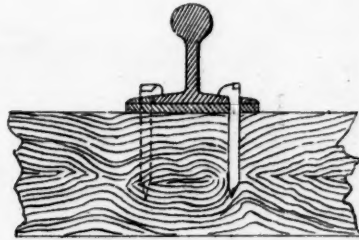
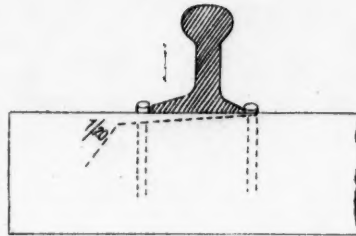


Fig. 14.

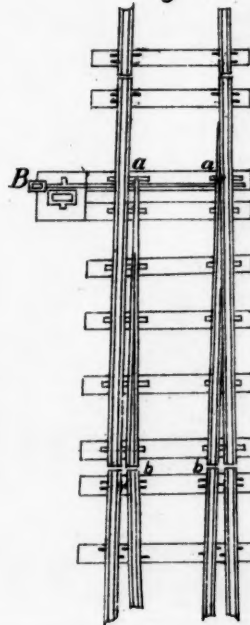


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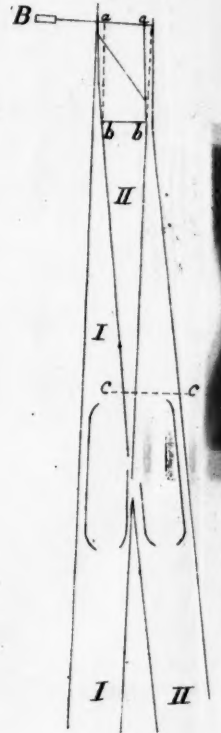


Fig. 16.

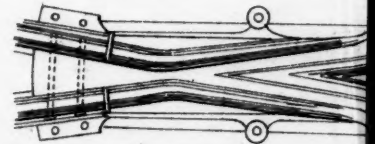


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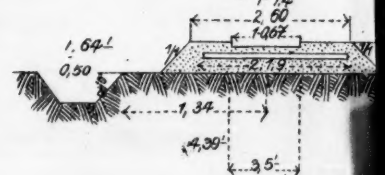


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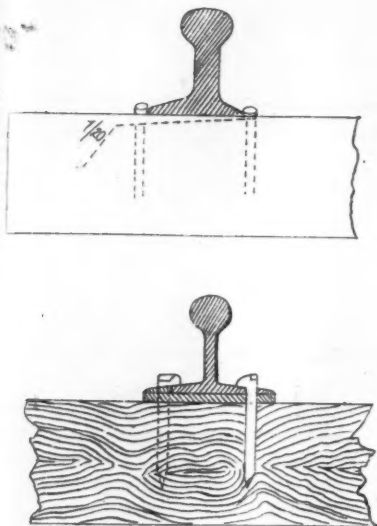


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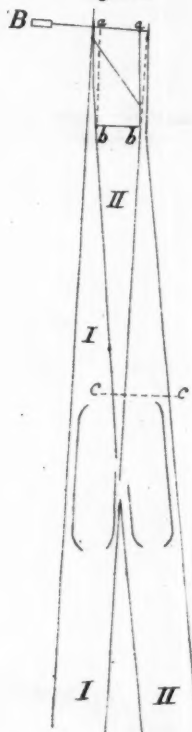


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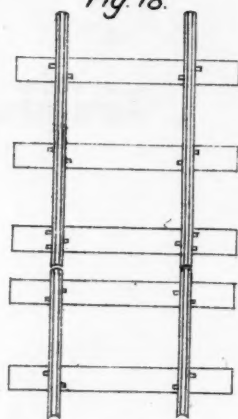


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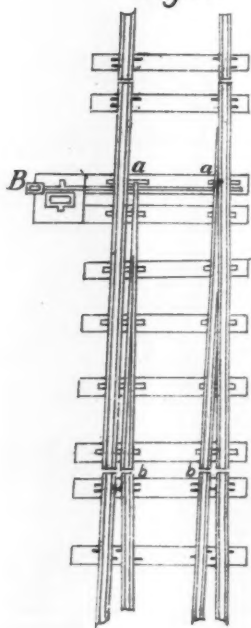


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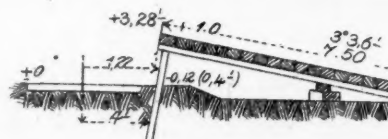


Fig. 16.

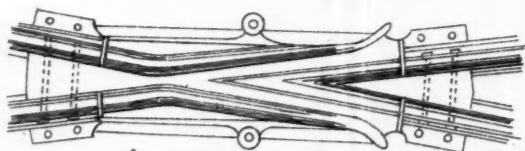


Fig. 17.

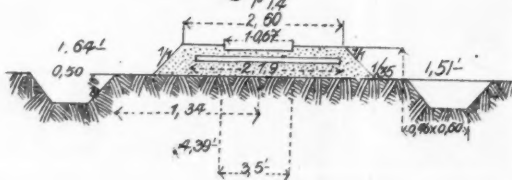


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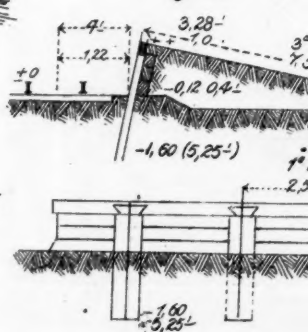


Fig. 21.

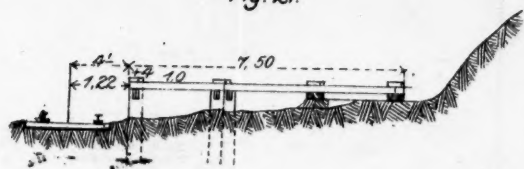


Fig. 22.



Fig. 23.

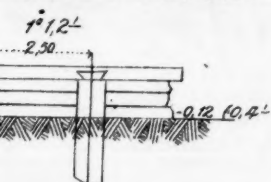
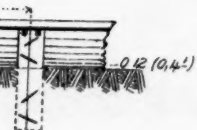
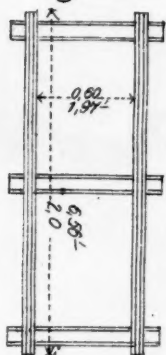


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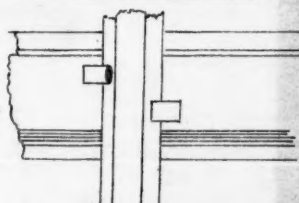
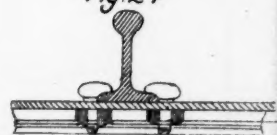


Fig. 25.

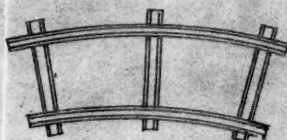


Fig. 26.

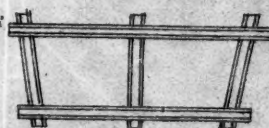


Fig. 27.



Fig. 28.

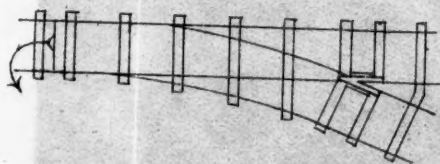
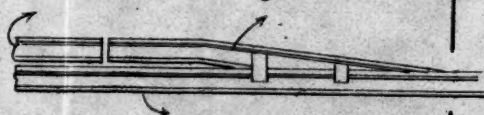
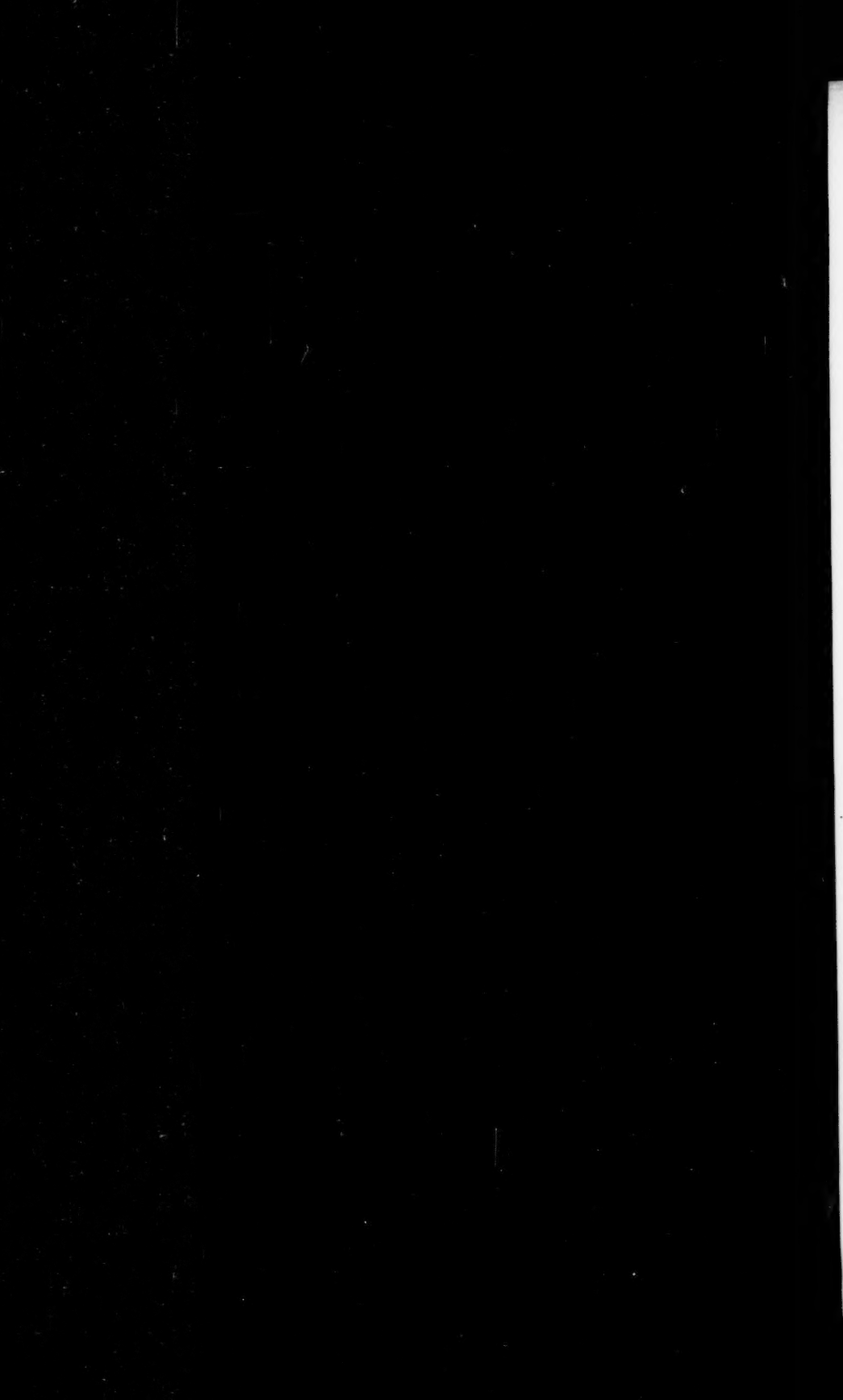


Fig. 29.





rails are laid over it, the other ends resting against a sleeper on the line. The rails are further supported at their centre on props.

8. There are many other ways of improvising ramps; their mode of construction varies according to local conditions, the purpose for which they are intended, and the materials available for their construction.

9. The loading and off-loading of trucks may also be carried out by means of cranes.

10. When a train is composed of different kinds of trucks, a fixed ramp should be constructed and the train should be moved so as to bring each truck in turn alongside of it to be loaded or off-loaded, as the case may be.

To construct a fixed ramp, short rails are driven in the ground at right angle to the plane of the ramp, and the ends of the rails forming the ramp are laid over a transom supported by the sunk rails, and are then covered over with planks, as shown in Fig. 46.

11. A ramp is sometimes made sufficiently wide to serve as a platform as well as a ramp, 28 to 36 rails being used to obtain the necessary width.

12. With a double line, a flat, open truck may serve as a platform by using a gangway to connect it with the truck to be off-loaded, and by providing it with a ramp, as shown in Fig. 48.

River Obstructions.

1. Obstructions are used to render rivers unnavigable.

2. Shallow places may be obstructed by placing snags or large stones in the bed of the river.

3. Booms made of logs chained end to end and stretching across a river form the strongest obstruction. (Fig. 49.) The logs may be used singly or they may be fastened together in twos, threes, or fours. The ends of the logs are bound with iron, and the chains are bolted to them in various ways, as shown in Fig. 50.

4. Where the water is not deep, parallel rows of stakes (stockades) driven in the bed of the river and well braced together at the top with diagonal cross-pieces form a good obstruction. (Figs. 51 and 52.)

5. The most efficacious obstruction against steamers is a hawser stretched across a river and kept at a certain depth by means of floating casks. Twisted ropes are suspended from the hawser at intervals of 6 metres (19 feet 6 inches) from one another, and serve to foul the screw of a steamer attempting to pass.

6. Another form of obstruction are mines laid in the bed of a river.

7. In deep water, floating mines are used.

8. The obstructions shown in Figs. 51 and 52 serve also to prevent the passage of any floating objects.

9. There are very many ways of using mines to obstruct rivers. They are described in the "Manual on the Use of Explosives in the Field."

THE MORAL OF TROOPS.

By M. le Général DE NÉGRIER.

Translated by permission from the *Revue des Deux Mondes*.

Continued from November JOURNAL, p. 1302, and concluded.

IN the Report made by M. Berteaux, in the name of the Army Commission, and which has for its object the reduction of the length of service in the Active Army to two years, we find, on p. 110, the following statement:—"The Act for two years' service will give us homogeneous Reserves, composed of the *maximum* of able-bodied men, who will be instructed and trained. These are the Reserves which ought to constitute, on mobilisation, the forces destined to sustain the National Struggle." This is an erroneous conception of the value of the Reserves. They can in small numbers complete the battle units; they cannot "constitute" them. Actual war has given us again indisputable proof of this, and the disastrous consequences of this error will be perhaps very grave. On the 2nd September, 1904, at the battle of Liao-Yang, the Orloff Division was composed of an active regiment, placed in the first line, and of two regiments of Reservists, placed in the second line. These last, seized with panic at the commencement of the action, fired on the "active" regiment in front of them, and the whole division was thrown into disorder, thus causing the loss of the battle, which had been won on every other part of the field.

The Report also loses sight of the fact that, in order to be able to resist a sudden attack, it is necessary to have time to call up and mobilise the Reserves. It is, however, certain that this time will be wanting, since we are on the defensive. The period called "political tension," during which a certain number of measures preparatory to mobilisation may be taken, is a snare. Everybody knows it, and nevertheless pretends to believe it because the truth is inconvenient. As we have decided to do everything in order to avoid war, no move will be made, even if it is imminent, in order not to furnish a pretext for an immediate opening of hostilities. The Schnaebelé incident is there as a proof of this. At that moment we were within an ace of war; nevertheless, the Government not only refused to make any preparations, but even, it is believed, went so far as to counter-order certain renewal of supplies to the frontier forts, which was being carried out in the usual matter of routine. It was feared that the Germans might make the movement of some mules a pretext for accusing us of preparing for war.

The legislator thus loses sight of the fact that the country is always in need of a trained force, ready for immediate use, in order to give the nation time to take up arms. The Germans have realised this necessity, while we are ever moving further and further away from this essential aim.

At the present time Germany has aligned in the zone adjoining our frontier between Longwy and Belfort 127 battalions, 234 squadrons, and 102 batteries; she can then (by calling on the men who have recently quitted their regiments, and consequently without being under the necessity of mobilising) dispose of 135,000 rifles, 32,000 sabres, and 612 guns. In these conditions, how cover the frontier? We have not a territorial system of recruiting. It is necessary to complete our effectives with Reservists called up in great haste, and who do not know each other. The great invasion is possible, and with it all its moral consequences.

With the two years' service, such as is now proposed, what can we oppose immediately to this force?

Let us admit that the companies of the troops covering the frontier are maintained at an effective of 175 men, which they ought, as a matter of fact, to have, and that 10,000 re-engaged soldiers, contemplated by the new Act (p. 114), are distributed between the covering infantry and cavalry; there will be in the companies, 20 re-engaged men, 78 recruits, and 77 soldiers with one year's service. Seventy-five thousand infantry will then, at the outset, have to sustain the shock of 135,000 Germans during the time necessary for mobilising and concentrating our troops. If war broke out in January or February, when the recruits called up on the previous 8th October would not have gone through their musketry course, there would only be 43,000 infantry which could be opposed to the 135,000 Germans.

Too much stress cannot be laid on this point, that the German organisation rests on essentially different principles to ours. All the men re-called find in their regiments their old comrades and leaders; it is common knowledge. The army for the first attack is composed of the three latest classes, supported by some 80,000 re-engaged non-commissioned officers; it presents an effective ready for immediate action of 604,000 men, perfectly instructed and trained. It is amply sufficient for the first months of a campaign. The confined theatre of operations, which extends from Longwy to Belfort, a distance of some 300 kilometres, is not favourable for the employment of very large masses of troops. A higher effective would only serve to increase the crowding. This first army of invasion is, then, ample to maintain the campaign alone for several weeks. This gives time for getting Reserves in hand, and for training them before sending them to the front.

In France, the territorial system of recruiting having been up to the present discarded, the Reservists sometimes come from very distant parts of the country. As a rule they know nothing of each other. The army to stand the first shock of war does not exist, and our field army could only march after having received its full complement.

It is difficult further to see how, with the two years' service, the Government could dispose of a dependable effective to maintain order in the event of strikes. The regimental life necessitates a certain number of *employés*, who can only be taken from among the old soldiers. Moreover, the necessity for keeping guard over powder

magazines, stores, etc., has to be taken into account. If strikes occur at the moment when the recruits are not yet in a condition to march, it will be impossible to send a force anywhere to maintain order. Thus the necessity of organising a mobile gendarmerie is apparent, the duties of which should from the first be clearly laid down; but are we certain that it will be always sufficient?

Our military system is, then, in accord neither with the exigencies of our home political position, nor with that of our foreign policy. The territorial system of recruiting has been up to now discarded, in order that in case of disturbances the soldiers should not be brought face to face with their fathers and friends. This excuse is not one that can be accepted, and this situation should not be allowed to last.

Human races are not equally brave, but there do not exist any races that are absolute cowards, because, by the ordinary law of nature, such disappear. Those which have become effeminate through a too great prosperity or from debasing political principles, have been destroyed as far as their independent nationality goes, and find themselves forced to submit to the rule of the foreigner. Such were the peoples of the East conquered in days of yore by Rome; such is China to-day.

The President of the United States, Mr. Roosevelt, quite recently pointed out the dreadful position in which China, with its four hundred millions of inhabitants, has been placed, constrained to put up with invasions, massacres, violations of temples, tombs, and palaces, etc., at the hands of foreigners. In his words: "The nation which abandons itself to an existence of ease and looks upon war with horror, rots away without advancing. It is destined to decline and become the slave of other nations which have not lost the virile qualities." In his remarkable preface to the book of Mr. T. Roosevelt, "The Strenuous Life," M. Jean Izoulet writes: "China will be a serf unless she rouses herself from her long slumbers by a violent awaking, and does not rush into terrible reprisals. . . . During the past centuries, Germany and Italy, without unity and without frontiers, without a Government and without an Army, have been trampled under foot by other nations. . . . It was not sufficient to attain to wealth and culture, to have Venice opulent and Florence a city of letters. It has required fifteen centuries for Italy, from Augustus to Victor Emmanuel, to emerge from the depth of her hell of anarchy and invasion." This cannot be repeated too often to the French people of to-day. The moral condition of a race makes of it either a nation of free men or a race of Helots. This moral condition is the result of heredity and tradition almost as much as of physical and intellectual culture. We know, as a matter of fact, that the value of a man's brains, his qualities, his sentiments, are in a great measure the result of heredity. In working towards our complete state of perfection we exert ourselves so that our descendants may reach an intellectual and moral standard superior to our own. It is thus that races of warriors and brave men develop themselves. The Japanese are giving us at the present moment an example of this. For centuries past, their legends, their poetry, their scholastic education have been a glorification—which has become almost a religion—of bravery and honour. A military feudal caste, filled with the noble idea that the loss of honour renders life intolerable, were ready to hand to form the cadres

which have given vigour and life to the troops. Such a people, trained by their traditions to a contempt for death, as well as being filled with the most ardent patriotism, must naturally prove intrepid.

We cannot repeat too often that it is in its moral force that we must seek the essential cause of the repeated successes of the Japanese Army, and certain details enable us to understand how powerful this force is.

In April, 1904, there appeared in Tokio the first number of a quarterly review, in which the editor, Colonel Kinkodo of the General Staff, explained the origin of the war and compared the strength of the two belligerents. The statistics of the two nations are striking from the enormous difference in the figures which they present. A nation of 400 millions of inhabitants against one of 44 millions. A budget of 5 milliards (francs) against one of 775 millions. An annual military budget of 750 millions against one of 95 millions. An Army on a peace footing of a million soldiers, against one of 175,000 men, whilst on a war footing Russia disposes of 4,600,000 as against 675,000 Japanese. In face of these figures, one may well ask how Japan could venture to challenge so formidable an adversary. The answer is, that numbers are not everything. There is also another factor, which statistics do not reveal.

Colonel Kinkodo tells us what it is: Japan possesses certain virtues, certain moral qualities which raises her to a level with her adversary, and this, in spite of the enormous comparative weakness of her financial and material resources. Patriotism is the religion of Japan; the spirit of their religion, in the family as in the State, finds voice in the veneration of their ancestors, and one of the most moving ceremonies in the religious life of Japan is the grand festival of "Yasukuni Jinja" with the homages offered to the *manes* of the soldiers who have died for their country. In this cult, and in the spirit of patriotism which it evokes, the whole nation is closely united. This spirit has always been most jealously cherished by the masters who have given as the model for their youth the "Bushido"—literally "the Path of Chivalry." It is the explanation of the manners and customs of the Samourai, the ancient knights. No Japanese would hesitate between the forfeiture of his patriotism and death. This cult of ancestors with which everyone is filled, leads to the great principle which dominates all their actions: "Life is an accident which death atones for." To a soul penetrated by this sentiment, a single dastardly action empisons life, and it is no longer worth living. To the force that this *moral* develops must be added that intense gratification, that under all trying conditions, no matter what a man's social position may be, he will have no feeling of fear. It is for the man a sure source of consolation, of which decadent nations have deprived themselves, because the materialism in which they wallow necessarily destroys noble sentiments by the degradation of character. The immediate consequences of the Japanese frame of mind have been that their military leaders can count with certainty on the bravery and devotion of their troops, and that is the most solid base of every strategical and tactical combination.

An anecdote, related by Colonel Kinkodo, shows us still better the sentiments which animate his compatriots. There is in Japan a touching custom when one of the members of a family has to start on a distant and dangerous journey; on taking leave of his parents, a beaker filled with water is brought in, to which each in turn applies

his lips. It is a sort of communion which leaves in the memory of each a deep impression. In the second fortnight in February, last year, the Japanese decided that the Russian fleet should be sealed up in Port Arthur by means of steamers, which should be sunk in the fairway. Five steamers were selected for the purpose, and on the 19th February these were manned by 77 volunteers, officers, and men, under the orders of Commander Arima. Before starting, these gallant men, going to almost certain death, were bidden adieu to. On board the armoured cruiser "Asama," Captain Yashiro, taking a large silver cup filled with water in his hands, which had been presented to him by the Crown Prince, thus addressed the volunteers:—"In entrusting to you the duty of blocking the entrance to Port Arthur, a duty in which the chance of returning alive is only one in a thousand, I feel the same emotion as if I was parting from my own children. But if I had a hundred children, I would send them all on such a glorious and daring adventure as yours, and if I had only one son I would send him equally. In accomplishing your mission, if you lose your right hand, use your left; if you lose both hands, use your feet; if you lose both feet, act with your head, and loyally carry through the orders of your leader. I send you to death, and I do not doubt for an instant that you are ready to die. However, I do not wish to say that you ought to undervalue your life, and that you have the right to brave danger without serious cause, or only for the glory of your name. What I ask of you is, to do your duty without taking your life into consideration. The cup of pure water that we drink together is not to give you encouragement; you do not need that; it consecrates you as the representatives of the bravery of the crew of the 'Asama.' Now I wish to think of the happy day when I shall, perhaps, after your success, see some of you again. Submit your life to the will of Heaven, and fulfil with calm your tragic *devoir*."

We know what happened. On the 22nd February, under a terrible fire, the five vessels steamed full speed for the entrance. They were all sunk or blown up. Nevertheless, on the 3rd May, another attempt was made with a similar result. Heroic actions, thus serve for the education of youth. They are spread abroad equally by book and imagination. The whole nation thus works for the development of the intrepidity of the race. We are able to testify to the results obtained.

We must not lose sight of the fact that some races, formerly brave, may become weak and pusillanimous, when education, instead of exalting patriotism, does its best to destroy it. When a man gives way to the moral degradation of peace at any price, to the conception of happiness through the realisation of a life of enervating ease; he tumbles into cowardice; he is lost. Provident nature, which knows how to discriminate between mankind, condemns the coward without mercy. In order to attain its object it has willed that he whose heart is feeble cannot defend himself. Terror paralyses his movements, and places him at the mercy of his enemy. "Their arms fell from their hands," Polybius recounts, when speaking of the Romans, who, terror-struck at the battle of Cannae, allowed themselves to be butchered by thousands without defending themselves.

"Cowardice leads surely to the destruction of the race," is the dictum of Doctor Mosso, the eminent Italian physiologist. He lays down that "Instinct is the voice of past generations, which resounds

as a distant echo in the cells of the nervous system." This principle makes evident the important rôle that education plays in the virility of a people. Woe to that people whom decadent humanitarian theories have reduced into fearing struggle and effort. The energetic nations will overcome it. The pride in the cult of the "Old Country," decision and gallantry, inculcated in children from the earliest age, have made England a rich and powerful nation, which knows how to found its prosperity on the employment of its arms. With her the doors of the Temple of Janus are never closed. Thus her people, who swarm everywhere, march on towards the conquest of the world. Her pacific dithrambs have always only served to prepare the trap into which the enemy will fall at the desired moment. "*The lesson of the race, which is to put away all emotion, and to entrup the alien at the proper time.*"

In this respect we ought to envy England. The Frenchman does not appear to set value on having brave and hardy children; so much is this the case that some parents even go so far as to use fear as an auxiliary in order to obtain obedience, and thus make them timid and poltroons. When the State intervenes, in the shape of its University, does it make it a point to develop in its pupils energy and courage? Alas! No. There are some exceptions, and we do not doubt that in presence of national danger it would further reveal itself, but, as a matter of fact, both the schoolmaster and the professor are thoroughly imbued, by order, with the international ideas of peace, humanity and fraternity. Are there here the conditions favourable for preparation for war? Among the recruits brought up under a like system of teaching, the Army must then be prepared to find a moral state of mind every day more antagonistic to its governing principles, as to the necessary conditions of its existence, such as discipline and devotion. For creating and developing these virtues, the necessary time will henceforth be wanting. Its task will be more ungrateful than ever, because it is little probable that its cadres in the future will find recompense for their efforts in that high consideration with which they ought to be treated by the powers that be and by public opinion. Nevertheless, in the name even of humanitarian theories, have we not the right to demand that our schools, if they cannot imbue the minds, shall at least prepare the bodies of their pupils for the fatigues of the military life which has now become obligatory on all? In this respect nothing useful is being done at the present day. In the colleges nineteen-twentieths of the time is devoted to intellectual education, and one part only to physical training. Thus the physical strength of our youth is degenerating.

Germany, it is true, in this respect, is scarcely more advanced than we are. According to Preter,¹ out of every 1,000 one-year volunteers there are 150 myopes, 347 whose muscles are hardly developed, and 114 unfit for military service, whilst out of 1,000 conscripts, taken from the lower strata of society, there is only one myope, 267 of weak muscular development, and 73 unfit for military service! Degeneracy due to the methods of education of young people is thus certain. This danger has been pointed out for a long time, but the University, badly informed, treating in a light manner a question which it deems of secondary importance, finds it sufficient

¹ Preter, "Naturforschung und Schule, 1889."

merely to encourage physical exercises and gymnastics. But there is a method in teaching these. "In place of gymnastics taking place in the open air and the sun," says Mosso, "we do not hesitate to have covered-in gymnasiums. Military men monopolise them and puff themselves out with formulas and precepts. The attention of gymnasts is concentrated on the muscles of the arms, and they scarcely trouble themselves about the lungs, the heart, and the whole organism of the body. Military tendencies thus prejudice gymnastics. One loses sight of the principle that it is the training of the legs and not the arms which is the most essential. It is in the legs that lies a part of the secret of campaigns and battles, and it is the legs that one must study. The vigour of the human organism is the resultant of many functions. The skin, the lungs, the heart, the nervous system, and the digestive organs are certainly more important than the muscles. Thus, in physical training, a predominating importance should not be given to muscular exercise. Marches in the sun, skating, swimming, running, and everything which tends to fatigue us, to wear out our organism slowly, and to rebuild it under the most favourable atmospheric conditions, in surroundings which stimulate the activity of life, such ought to be the bases of true gymnastics."

An officer of the Swiss Army has published in a military journal an important report on his observations as regards gymnastics and marching:—"I have had," he says, "under my orders 46 conscripts who were all well-trained gymnasts. During the first two or three weeks this squad was the best in the company; but later it was distanced by the other squads, as the conscripts in which became more and more inured to marching, and felt the weight of the rifle and knapsack less. At the end the squad of gymnasts was certainly the weakest and succumbed easiest to the fatigues of marching. The squad of conscript gymnasts, among whom there was no lack of goodwill, had to recognise this. If this squad had not received a too protracted course of gymnastics, it would have been a model. But gymnastics had spoilt everything."

Why has the Superior Council of Public Instruction refused to give to the heads of schools some precise instructions with the view of developing the physical powers of the children?

"It would be necessary for that," writes Mosso, "that the instructor should be one who could prepare the children for what they may have to undergo during the performances of their military duties. He must not be under the belief that it is sufficient to take young men across country in the sun, a ferruled stick in his hand. He must know how to graduate the energy of work, and to vary it according to age and the effects that he wishes to draw from it. Hence the necessity for a special study and training which ought to be given him in the normal schools. Young people are not all cast in the same mould, and there are profound differences between one person and another. For these marches, and for the Swedish gymnastic exercises, young people ought to be classed according to their physical aptitude, as they are for their intellectual ones. The exercise of the body in which wrestling takes an important part ought to become a popular instruction, and philanthropists should interest themselves in the physical improvement of their fellow citizens. Whoever wishes to see the nation armed ought to devote all his attention to the weakly men, and to make a reaction against the inconveniences of urban life a strong point, which produce myopia,

nerves, emaciate the frame, and wither the muscles and fitness for the fatigues of war."

It does not seem that in France we are about to enter on that path. It is, however, necessary, since the Latin race seems to succumb to the law that the industrial developments, mechanical and intellectual accentuates its physical decadence. To those who wish to deny the fact, it is sufficient to point to recruiting statistics, recording the progressive percentage of those put back, and the physically incapables. The artificial conditions of modern life are evidently the cause of this.

The Army in its educational rôle ought not to count on a soil prepared to receive a good seed. On what then can it found its action? There will remain hardly anything but the energy and courage which lie dormant in the blood of our race. This courage will awake when a noble example is set. It is here that we must seek the *points d'appui*, which will enable the two-years' service soldier to do useful service. More numerous cadres are then indispensable. There should contain henceforth a certain number of old soldiers who will serve both as models and guides.

The two-years' military law causes a certain diminution of our military power. But this point of view (the only one which ought to be kept in view) is equally the one which cannot be discussed, since this law has no other object but to give a provisional satisfaction to the electoral *clientèle*. The most important question then is, how we can make the best of this new two-years' service? It would be necessary in the first place to maintain on the frontier, troops sufficiently well-trained and sufficiently numerous to be able to resist a sudden attack during the time necessary to mobilise and concentrate; next, to assure that the mobilised troops are properly stiffened by the reservists rejoining the companies, squadrons, and batteries in which they were trained. The effective that we must maintain on the frontier depends on what the Germans can put in the field for a sudden attack. It has been already mentioned that this force is composed of 127 battalions, 224 squadrons, and 102 batteries. In order to resist, in a defensive, which will only yield ground foot by foot, it seems that we cannot require from our troops that they shall fight in a greater inferiority than one to two for infantry and artillery, and of one against four for the cavalry. We shall need then, on the frontier, 64 battalions against 127 Germans, 50 batteries against 102, and 60 squadrons against 234. But it will be necessary that the effectives in our battalions, squadrons, and batteries should be at least equal to those of the Germans.

A calculation, into which it is not necessary here to enter, shows that if our companies, batteries, and squadrons have not a strong nucleus of re-engaged men, our infantry will be forced at first to fight one against three under the most favourable circumstances, and one against five while the recruits are still unfit to take the field. In order to avert so disastrous a position, it will be indispensable that in the troops told off to guard the frontier, there should be 60 re-engaged men per company, 50 per squadron, and 30 per battery; this will necessitate 25,000 re-engaged men for the corps protecting the frontier alone. But it is equally necessary that, without the need for mobilisation, the commanders of troops should be able themselves to recall to the ranks the two last classes discharged by means

of individual orders of recall. This would permit of a rapid completing of the effectives.

With the two-years' service territorial recruiting becomes indispensable. We cannot lay too much stress on this point. It is indispensable that the reservist belonging to one of the last classes freed from service should return to his original company, squadron, or battery. The cohesion of the regiments demands this. The system of a successive calling up of classes by seniority and according to needs must be given up. On the frontier we must recall and incorporate immediately all the men still liable for military service, whatever their age may be, otherwise they will be liable in the territory invaded to be treated as prisoners of war; on the other hand, if, in order to guard against this eventuality, they were concentrated in the rear without being drafted into the organised forces, their means of existence would not be more assured, and disorders would have to be guarded against. This disposition of the frontier population would offer the further advantage of very rapidly placing on a war footing not only the corps but also the front lines of forts and positions. The villages adjoining the forts, warned as soon as the enemy crossed the frontier, would immediately send all the men still liable for military service, to take the place in the fort that they held when on active service, whatever their branch of the Service was, so everything would be familiar to them. The men in excess would be at once formed in detachments and sent to the dépôts. The garrisons would then be placed on a war footing in a few hours, and there is no doubt that with such an organisation, our Eastern population would derive a sense of security they are far from feeling at present.

To dilate more on these questions would take too long. A law of cadres adapted to the moral and material situation of the country; a rational organisation founded on confidence in the responsible heads and in those responsible for carrying it out; re-engagements for three years open to the age of twenty-seven, but which would not be renewable after that age, in order to avoid the danger of elderly and superannuated soldiers; such are the principal bases which would permit of the country possessing an Army in which it could place confidence. But we must not lose sight of the fact that our position, as a Colonial Power, may at any moment compel us to send important forces abroad, and that our African Army, on the one hand, and our Colonial Army on the other, are scarcely sufficient for their duty as it is. We must then organise a force always ready for foreign service, composed of re-engaged men and volunteers. A division of three brigades of two regiments of four battalions, provided with artillery, mounted infantry, and the necessary train, would appear to be a force which would meet our needs. In 1899, speaking at Chicago, Mr. Roosevelt said:—"M. Daudet, in one of his powerful and melancholy books, speaks of the 'Fear of Maternity,' the terror which haunts young wives at the present time. When such words can truthfully be written of a nation, that nation is rotten to the heart. When men fear work or fear a just war, when wives fear maternity, they tremble on the brink of damnation; it will be well that they should vanish from the face of the earth, where they are the first objects of contempt for all good men and women, who are themselves strong and brave and lofty souled." Are we then that nation? Are we destined to pass under the yoke? By

heredity the Frenchman ought to be brave. Has international mystification then become abased to the point that a man would avoid danger in order to delude himself into the belief that he would not have to fight? Do not let us despair. We can still repudiate with disgust the cowardly theories of comfort at any price. But bad conductors instead of preserving from the lightning flash, attract it. A country which is not resolute to make all the sacrifices necessary to preserve its independence, will be better not to maintain an Army. Military force requires something more than a figurehead. Regiments where the band is the most substantial unit have never intimidated anybody. To wish to play at being a great nation is ridiculous when one is resolved to give up everything sooner than fight.

Better is to disarm, and then bend our neck to the collar and purchase our peace at the price of a chain. Our abasement will allow us to get rid of an irregular militia "Military Rags," which is expensive and of no value. Is it sufficient to dress up citizens suddenly as soldiers to provide troops ready for fighting? Everybody knows it is not. Why appear to believe in this fiction? Under penalty of destruction we must return to the principles which at all times have ensured the cohesion of Armies, and not attempt to send to the frontier mobs without consistence, whom the least reverse will break up into demoralised elements.

At certain grave periods, some divine inspiration passes over a nation, exalts, transforms, and elevates it. It is because it brings with it the principles of all the moral forces. These moral forces are called religion, patriotism, liberty. The people who turn from these virtues are irrevocably condemned. Soon conquered and dismembered, they disappear from the scenes of the world. It is the immutable justice of things.

NÉGRIER.

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Rear-Admirals—E. H. Gamble, C.B., to command of Plymouth Reserve Division; C. H. Adair to command of Chatham Reserve Division. Captains—C. W. A. Hamilton to "Barfleur"; H. H. Stileman to "Vindictive"; R. S. Lowry to "Russell"; T. H. M. Jerram to R.N. Engineering College, Keyham; S. R. Fremantle to "Cæsar"; the Hon. R. F. Boyle, M.V.O., to "Leviathan"; C. J. Eyres to "Spartiate"; the Hon. Stanley C. J. Colville, C.V.O., C.B., to "Hindustan"; A. G. Tate to Portsmouth Dockyard; E. R. Le Marchant to "Nile"; A. H. Christian to "Duke of Edinburgh"; C. F. Thursby to "King Alfred"; H. V. Elliott to "Encounter"; D. R. S. De Chair to "Bacchante"; C. L. Vaughan-Lee to "Astræa"; S. V. De Horsey to "Kent"; J. G. Hewitt to "Blake." Commanders—F. W. Dean to "Speedwell"; A. B. Purvis to "Dryad."

The first-class armoured cruiser "Leviathan," flag-ship of the Third Cruiser Squadron, arrived at the Nore from the Mediterranean on the 27th ult.; she proceeded the same day to Chatham, where she paid off on the 4th inst., recommissioning on the following day for a further term of service, and leaving on the 8th inst., to return to her station. During her temporary absence from the Mediterranean, Rear-Admiral the Hon. H. Lambton, C.V.O., C.B., has been flying his flag in the first-class armoured cruiser "Carnarvon."

H.M.S. "Assistance," the repair-ship attached to the Atlantic Fleet, which went ashore on the 12th October in Tetuan Bay in a gale of wind, was successfully refloated on the 15th ult.; she has since been brought to Gibraltar and been placed in dock for overhauling.

Admiralty Policy.—"A Statement of Admiralty Policy" has been issued as a Blue Book [Cd. 2,791].

The following is the First Lord's memorandum on "Admiralty Work and Progress":—

Introduction.

The Board of Admiralty desire to present to Parliament (and through Parliament to the public) an account of the progress that has been made in carrying out and developing the series of Reforms that have been undertaken during the past three years.

While falling under several main heads, and at first sight perhaps not very closely connected, these reforms are all related and interdependent, and have their foundation in the Reorganisation of the *personnel* and in the Redistribution of the Fleet described in the two Statements issued by my predecessor in the December of 1902 and 1904. The reconstitution of Naval Education brings about far-reaching effects on the period of service and the allocation of officers, and reacts again on the entry and organisation of the Seamen, Stokers, and Marines. The release of crews from

ships which would not be of value in war has made it possible to man the Reserve ships with permanent crews, thereby largely increasing their efficiency, and consequently their instant readiness for war. The formation of a Reserve Fleet ready for immediate service allows of a more advantageous distribution of the Sea-keeping Fleet and of a better system of training for the Royal Naval Reserve. The elimination of the older vessels, which require the most frequent overhaul and repair, greatly reduces the work of the Dockyards, and therefore allows of a reorganisation of the labour conditions.

Development of the New System of Entry and Training of Officers.

When the New System was introduced in 1902 the Board felt that, owing to lack of experience and of sufficient data, they were not justified in holding out to all candidates who should enter for the three branches — Executive, Engineering, and Marine — the hope that they might eventually become Captains of Ships and Admirals of Fleets. It was premature then to declare that it would be possible to do away completely with the distinction between the three branches when the Officers reached the rank of Lieutenant.

That the general efficiency of the Navy would be much assisted by the removal of this distinction was to them beyond doubt, but there was no necessity to come to an immediate decision upon this point, and accordingly, without in any way tying their hands, or those of their successors in the future, the Board considered it best to assume that the division into the various branches would be definite and final.

In order, therefore, to allow the Admiralty a completely free hand, no candidate has been accepted who has not volunteered for any one of the three branches.

It will be remembered that, in order to provide for the new Cadets during the first two years of their training at the age of from 12 to 14, a new College was built at Osborne, and a new system of education and training has there been inaugurated with great success.

The progress of the Cadets during their first two years has been most carefully watched, and at the close of this period the Board felt that the experience gained warranted them in instituting a detailed inquiry into the probable future development of the new officer.

A Committee was appointed, under the presidency of the Commander-in-Chief at Portsmouth, Admiral Sir Archibald Douglas, G.C.V.O., K.C.B., to consider whether the time has arrived to formulate regulations for the allocation of the duties of future officers in the various branches of the Service, and to report:—

- a. Whether any necessity exists for the distinct classification of such officers under existing branches of the Navy, with a view to their remaining specialised for the whole of their future service.
- b. Whether specialisation for a period of their career only is necessary; and, if so, to indicate the procedure that should be followed to carry out the necessary duties of the Service afloat.
- c. How best to provide for filling efficiently the higher scientific appointments of the Admiralty and Dockyards.

The report, which is discussed in detail in a separate note, has convinced the Board that there will be no need for a final division into the three branches, and that specialisation for a period only is necessary, as opposed to permanent classification into separate lines.

There can be no question of the great advantage to the efficiency of the Service that this removal of differences will entail.

The Royal Marines will not in future possess a Staff of Officers entirely distinct, as at present, from the Officers of the Royal Navy, but the Board see no reason why the historic traditions of this famous Corps should not be carried on with a solidarity enhanced rather than diminished by the closer association of its officers of every rank with the sea service, of which it, as the Sea Regiment, has been for more than two centuries the honoured and invaluable ally.

Engine-Room Watch-Keeping.

Sir Archibald Douglas's Committee was also asked to report on the methods for providing Warrant Officers capable of taking charge of the Stokehold and Engine-room Watches, so as to relieve the more highly-trained officers of the ship from the routine duty of Engine-room Watch-keeping.

It has long been felt that the Stoker Class should have better opportunities of advancement, and in the Memorandum of December, 1902, the creation of the new Chief Petty Officer rating of Mechanician, to be filled from the Stoker Class, was announced.

Further consideration of the various duties in the Stokehold and Engine-room led the Committee to recommend that in future the highly-trained Engine-room Artificer Class should not, as heretofore, be called upon to undertake ordinary watch-keeping duties, but should be enabled to devote all their time to their real calling of Artificers, and that watch-keeping duties should be undertaken by men selected from the Stoker Ratings after a suitable course of instruction.

The Board have adopted this policy, and the Stoker Ratings will in future be eligible for promotion to Warrant Officer rank for duty as Engine-room Watch-keepers.

Royal Naval Reserve.

The arrangements for the drill and training of men of the Royal Naval Reserve have been recently reviewed in order to improve the efficiency of this branch of the Reserves, and also to reduce its cost.

Hitherto Royal Naval Reserve men have been drilled on board the harbour Drill Ships and Batteries established round the coasts of the United Kingdom, and a certain number have undergone a period of Naval Training on board the sea-going Drill Ships, or in ships of the Channel Fleet. This system is, however, no longer well adapted to the requirements of the Service, inasmuch as the greater part of the drill has been devoted to Gunnery, a class of duty which is very unlikely to devolve upon Royal Naval Reserve men in war, and as (excepting perhaps the limited number of men who embark for nine months of Naval Training) they do not acquire and maintain sufficient knowledge of the general routine of a man-of-war.

The establishment of the divisions of ships in commission in Reserve has now given an opportunity for affording the Royal Naval Reserves the training in which they have hitherto been wanting. These ships have only a portion of their crews on board, and can therefore accommodate a considerable number of Reserve men, with advantage both to themselves and to their crews. Although the ships only go to sea for cruises once a quarter, the general routine is much the same as when they are fully commissioned for sea service, and since they will change frequently, the

Reserve men will have more facilities for becoming familiar with the internal economy of a modern man-of-war.

It has accordingly been decided that from the 1st April next, all drill at Batteries and in Harbour Drill Ships shall cease, and the establishments will be closed, except in a few cases, where the present system will be continued a little longer. These exceptions are the Drill Ships in London, Aberdeen, Bristol, and Liverpool, and the Royal Naval Reserve Batteries at Penzance, Yarmouth, Wick, Stornoway, Lerwick, Greenock, Upper Cove, and Rosslare.

Under this new system of training, the men will be expected to embark in the first year for three months, and thereafter for one month every alternate year.

Non-continuous Service.

The development of the Non-continuous Service system of entry of Seamen, as a supplement to, and partial substitute for, the Continuous Service system, which has been almost universal for 50 years, is described in a separate note. The Continuous Service plan is very costly, but is still required for the production of the higher Gunnery and other skilled ratings of the Fleet.

There are, however, a great number of men who do not need this expensive training, and can profitably be passed, after a shorter period of service, into the Royal Fleet Reserve.

Changes Affecting the Pay of the Men of the Fleet.

Two advantages are to be given to the Seamen and Marines afloat, beginning in October, 1906:—

- a. A provision allowance of 8½d. a day will be paid to Warrant Officers, Seamen, and Marines on ship's books who are away on leave beyond 48 hours. This privilege or its equivalent is already enjoyed by Soldiers and Marines on shore strength, and will take effect after 30th September next.
- b. Under the arrangement hitherto prevailing, men may make monthly allotments of money from their wages to their relatives at home, subject, in the case of foreign stations, to a portion of their wages being retained in hand as security against loss by death, desertion, etc. The sum allotted is sent to their relatives through the Admiralty from the ship at the end of the month. This system of withholding earnings occasions much dissatisfaction among the men, and distress to their families, who have to wait a considerable time after a ship sails for a foreign station before receiving means of support by means of regular allotment. Now that deaths are reported by telegraph, and even postal intelligence of a man's desertion is very rapid, there is no serious risk of the loss of public money in foregoing the retention of deposits, and in all ships commissioned after the 30th September next this system will be changed.

In 1903 it was decided to recognise the value of the services of Chief Petty Officers by the award of improved pensions, the estimated ultimate additional expense being £73,000 per annum. This concession took effect on 1st April, 1903, and has been the cause of a feeling of great satisfaction amongst the Petty Officers and Seamen of the Fleet.

Reorganisation of Reserve of Ships.

The plan for the substitution of Reserve Squadrons, manned by nucleus crews and stationed at each of the three Home Ports, for the old "Fleet Reserve" system, as described by Lord Selborne last December, has proved completely successful, and all the ships now in the fighting line are always ready for sea.

At the same time, the list of the Navy has been reduced by the removal of nearly 150 ships of all descriptions which had but a small fighting value.

The elimination of older ships permits the whole of the War Fleet to be manned with active service ratings, with the exception of Stokers, all of whom can be provided from the Royal Fleet Reserve with the exception of 600 men. It is expected that in the course of the year a large proportion of the active service Stokers needed will be obtained.

Our best fighting machines must be kept at the highest state of efficiency, and other ships and vessels hitherto retained, in some cases because "they might come in usefully for subsidiary purposes in future war," must be placed in an altogether secondary position, and not relied on as the first fighting line of the Navy.

The Distribution of Ships among the Fleets.

The distribution of the Ships of H.M. Navy in peace time must largely depend on the International relations of the Powers.

A distribution of Fleets adapted to the requirements of the old wars led to the growth of subsidiary Dockyards and Depôts abroad. Considerations of convenience and labour conditions in both home and foreign Dockyards have in the past led to a certain customary peace distribution of Ships which has at times been persisted in even when war has seemed imminent. Plainly, however, peace considerations cannot be allowed to regulate the strategic distribution of our Ships at the outbreak of hostilities.

The periods of European rest as well as the stable grouping of International interests during the latter part of the last century had assigned certain degrees of relative importance to our various squadrons and the scale of their strength has been reflected in the rank and capabilities of the Admirals selected to command them. So much has this been the case that to-day people are apt to look on a definite number of ships on any given station as a fixed quantity rather than a strategic exigency.

This idea must be entirely dispelled. Squadrons of varying strength are strategically required in certain waters; but the kaleidoscopic nature of International relations, as well as variations or new developments in Sea-power, not only forbids any permanent allocation of numbers, but in fact points to the necessity for periodic redistribution of ships between our Fleets to meet the political requirements of the moment.

Since the redistribution of the Fleet described by the late First Lord in his Memoranda of 6th December, 1904, and 15th March of this year, the following are the chief changes that have taken place:—

The strength of the Channel Fleet has been increased to seventeen Battle-ships.

The strength of the First and Second Cruiser Squadrons has been completed to six Armoured Cruisers of the latest type in each case.

A Squadron of three Cruisers has been employed in connection with the settlement of fishery questions in Newfoundland, and is now leaving for

an extended cruise down the coasts of North and South America and back by the West Coast of Africa, and the Cruisers "Cambrian" and "Flora" are about to proceed on a prolonged cruise on the Pacific Coast and the adjacent islands.

The Board attach much importance to the provision of Repair-ships to attend the squadrons at sea. The damage done to the "Assistance" by her recent stranding in Tetuan Bay will take a considerable time to make good, and so a similar vessel has been bought to replace her temporarily. When the "Assistance" is ready for sea again, there will be repair-vessels with the four principal Fleets.

Manœuvres.

The Grand Manœuvres have been arranged to take place in June next, when, in association with the putting to sea of every fighting vessel, large and small, intended to be used in war, there will be an extended test made as to the scheme recently elaborated for the protection of trade, when the co-operation of the shipping interest is hoped for in elucidating this difficult problem.

(To be continued.)

FRANCE.—The following are the principal promotions and appointments which have been made: Rear-Admiral—J. F. Krantz to be Chief of the Staff, 5th Arrondissement (Toulon). Capitaine de Vaisseau—A. M. Thierry to be Rear-Admiral. Capitaine de Frégate—G. A. Festy, V. M. Morazzani, J. L. Girard la Barcerie, to be Capitaines de Vaisseau; F. M. L. De la Croix de Castries to "Vaucluse"; A. Frot to "Condor"; P. A. Kérihuel to "Alouette" and Command of Defence Flotillas at Cape St. James, Saigon.—*Journal Officiel de la République Française.*

New Ships.—After long delay extending over many months, the first keel-plate of the new first-class armoured cruiser "Edgard Quinet" was laid in the dockyard at Brest on the 6th ult. Originally the ship was to have been built at Toulon; Lorient was next selected, and finally Brest. She is, nominally, a sister-ship of the "Ernest Renan," which is being built by contract at St. Nazaire, but she and the "Waldeck Rousseau," the third ship of the group, to be laid down at Lorient, are some 360 tons more displacement, with an increased beam of 6 inches. The dimensions of the "Edgard Quinet" and "Waldeck Rousseau" will be as follows:—Length, 515.1 feet; beam, 70.3 feet; displacement, 14,000 tons, with a draught of 27 feet 6 inches. The engines are to develop 36,000-I.H.P., giving a speed of 23 knots; both ships having an instalment of the small-tube Du Temple-Guyot water-tube boilers. The normal coal supply will be 1,242 tons, giving a radius of action of 6,000 miles at 10 knots, while on an emergency 2,300 tons will be carried, giving a radius of action of 11,000 miles. The armour protection will consist of a complete water-line belt of hardened steel 6.7 inches thick, tapering to 3.6 inches, with an upper belt 5 inches thick, tapering to 2.2 inches, reaching to the main deck and rising to the upper deck forward. The armour on the main turrets will be 7.8 inches thick, with 5-inch ammunition hoists, and on the secondary turrets 5 inches thick, and on the main deck casemates 4 inches. The armament, it is stated, will consist of fourteen 19.4-cm. (7.6-inch) Q.F. guns, two in each turret forward and aft, and ten in pairs in turrets, also on the upper deck, fourteen 6-pounder and eight

3-pounder Q.F. guns, with two submerged torpedo-tubes; this, if it proves to be correct, is an important change, ten more 7·6-inch guns taking the place of the sixteen 6·4-inch guns in the earlier ships. A good deal of material has been accumulating for some time at the dockyard for the "Edgard Quinet," so it is hoped that rapid progress will be made in her construction, and that she may be ready for launching in a year.

Work is being pushed on rapidly now with the new first-class battleship "République"; the ship's appearance has not been improved by the way her funnels have been placed, of which she has three, two being immediately abaft the foremast and one aft in front of the mainmast. The foremost funnel is also too close to the fore bridge, the conning tower, and the mast, so that when the ship is under steam the heat in those parts is likely to be excessive; moreover, as the bridge is almost on a level with the top of the funnel, when the wind is aft, the smoke must interfere materially with the view of those working the ship from the bridge.

Work is also being pushed on with her sister-ship, the "Démocratie," all the armour being now in place. A new method of loading the 12-inch guns will be introduced into the six battle-ships of this class, which will enable a rate of firing of three rounds in two minutes to be carried out.

The New Destroyers.— "Not less than 15 destroyers will have been commenced this year, 7 in the Government arsenals and 8 in private yards. Besides that it is a larger number laid down than in any previous year, 1905 will be noted for an interesting experiment which makes a new departure as regards these small vessels.

"The objections that may be made to our type of destroyers is that they cannot maintain their speed in any sea-way, and also their vulnerability. This latter affects chiefly the compartments containing the machinery and boilers, where damage that may completely disable the vessel may be caused by the smallest projectile.

"It is this which has led to the consideration of giving some armoured protection to the vital parts, and a trial in this direction is about to be made. Two of the destroyers under construction are to be armoured with 40-mm. (1·57-inch) or 50-mm. (1·96-inch) plates, the exact thickness not having been yet determined on. The armour is to cover the engines and boilers and vital parts of the vessel, and will render those parts invulnerable to 47-mm. (1·85-inch) and 57-mm. (2·24-inch) projectiles at any range, and to the 76-mm. (2·99-inch) gun, which is the new calibre adopted by foreign nations for torpedo defence, at 2,900 metres and over. This light cuirass necessitates an increase of the tonnage from 450 tons to 470 tons, a displacement, it may be mentioned, already surpassed by the new destroyers of 525 tons of the English Navy.

"The speed will be less than that of the present type of destroyer, being 25 knots instead of 27 knots; but the loss of 2 knots speed will be fully compensated for by the power to maintain a high speed in rough weather.

"Forward and aft in the non-protected compartments are to be placed turbine pumps for quickly clearing the vessel of water admitted by damage in action.

"There are already in our Navy armoured torpedo-boats, which have given good results, such as the sea-going boats of the 'Sirocco' class, which have been given a light armour, but they have the defect that the

increased weight has been compensated for by the reduction of the coal carried, giving these vessels a very small radius of action. The larger dimensions of our new destroyers will admit of this defect being avoided.

"The plans are by Messrs. Normand, who are the sole designers of all our small vessels of this class, and have the credit of surpassing all foreign competitors."—*Le Yacht* and *Le Temps*.

M. Charles Bos's Report on the Naval Estimates for 1906.—The Report by M. Charles Bos, who, having established for himself a reputation as an authority on naval affairs, has for a second year running been selected as Reporter to the Chamber of Deputies on the Naval Estimates for the forthcoming year, has been printed and distributed. The Report is divided into three parts: a study on naval *matériel* and a discussion on the programme of new construction laid before the Chambers; a comparison between the French and German Navies, and a report on the present state of things in the new arsenal and dockyard at Bizerta.

The first part of the Report is more or less technical. M. Bos discusses at some length the naval operations of the late war between Russia and Japan, taking for his theme—after a carefully compiled comparison of the naval forces at the disposal of each combatant on the outbreak of hostilities—the six following phases of the war:—

1. The surprise of the Russian fleet at Port Arthur (the night of the 8th-9th February, 1904) and the action of the following day (9th February);
2. The destruction of the "Varyag" and "Koreëtz" at Chemulpo (9th February);
3. The action of submarine mines at Port Arthur and the adjacent waters;
4. The loss of the "Rurik" (14th August, 1904);
5. The battle of the 10th August, 1904;
6. The battle of Tsushima (27th-28th May, 1905).

"These six episodes," writes M. Bos, "which are the most important and decisive—the last indeed having practically led to the conclusion of the war—throw a singular light on the enormous progress which, unknown to the world in general, the officers of the Japanese Navy had made in the art of war. With the most modern instruments of war to his hand, armoured ships which were also veritable floating work-shops, Togo has displayed a skill in handling them, and also in making the best use of his vessels of the second rank, his torpedo flotillas, and bases of operations, which places him in the ranks of the great seamen whose names are handed down in history. Above all he has boldly taken the offensive. It is to his audacity as well as his methods to which he owed his repeated successes. And on the very threshold of our study this is the first lesson to be noted: '*That a battle fleet ought, from the moment war is declared, or even when it is certain it cannot be avoided, to boldly put to sea and strike hard and rapidly at its enemy. It is no use to await the enemy in a sheltered harbour, however well defended by coast batteries.*'"

Commenting on the heavy losses sustained by both the Russians and Japanese through the action of floating contact mines, as well as on the fact that several neutral steamers were sunk by them, entailing a considerable loss of life, M. Bos, while admitting that it may be impossible to forbid the use of such mines entirely, especially for the defence of

harbours and places on the coast where the landing of a hostile force may be easy, gives it as his opinion that some steps will have to be taken to safeguard the rights of neutral Powers. He holds strongly to the view that an International Conference ought to settle the question of limiting the employment of submarine mines, and of making belligerents responsible for all the losses neutral Powers may sustain through their use.

In his remarks on the action of the 14th August, when the "Rurik" was sunk, M. Bos points out that this battle, like the fighting off Port Arthur on the 9th February, the action of the 10th August, and the crowning victory of Tsushima, was a heavy gun battle, and it is important to note that while fire was opened at a range of 11,000 yards, which was occasionally reduced to 4,800 yards, yet that it was at a range of something over 7,000 yards that the fire was most murderous. He considers it is also clear from the small loss sustained by the Japanese ships and the little damage done to their ships, in comparison with what was inflicted on the Russians, that the Japanese must have practised their men at long-range firing for a considerable time before the war began, while the Russians showed themselves extremely bad gunners. The factor of speed was also an important one. It was thanks to their speed that the "Naniwa" and "Takachiho," after the "Rurik's" steering gear was damaged, were able to keep within a range of her of from 5,000 to 6,000 yards. It was also thanks to the superior speed of his armoured cruisers and light vessels (21.7 and 23 knots, as against the 20 knots of the "Gromoboi" and "Rossia") that Vice-Admiral Kamimura was able to maintain a position on their quarters at 8,000 yards range, and keep the two Russian vessels under a murderous fire, to which they could make no effective reply. It may safely be said that Togo's forces as a whole had a superiority of speed of from at least a knot to a knot and a half over those of the Russians.

M. Bos is unable to understand why Prince Ukhtomsky in the battle of the 10th August, after the death of Admiral Vitheft, signalled to the fleet to return to Port Arthur, as it is pretty certain that had he steamed on, the bulk of his fleet could have forced their way to Vladivostok, as it is now known the Japanese ships had run out of ammunition. M. Bos deals at some length with the battle of Tsushima, but adduces no facts not already known.

Coming next to the lessons to be drawn from the different operations, M. Bos gives it as his opinion that the Japanese tactics have completely modified the conditions of modern naval war; in fact, it may be safely said that no war has afforded so many lessons from the naval point of view as this late one, which has given Japan the Empire of the Seas in the Far East. England, the United States, and Japan itself have already commenced to take them to heart.

He sums up as follows:—"In the first place, the effective ranges for battle having been more than doubled—raised from 3,000 to 7,000 or 8,000 yards, it follows:—

1. That medium artillery ought to disappear from the armament of battle-ships.

2. That it is only necessary to have guns of large calibre, and, for preference, a single type, throwing a somewhat heavier projectile with a slightly reduced initial velocity, which in conformity with the law in mechanics MV^2 (the mass multiplied by the square of the speed energy), would be effective beyond a certain distance, where its velocity would be dropping.

3. That the Q.F. small guns for use against torpedo-boats should have a calibre of at least 3 inches, and perhaps of 4 inches, with as heavy a projectile as possible and a very high initial velocity, in order to strike an effective blow against these vessels, and so that they further can be used at a considerable range against the decks and superstructures of ships; some 3-pounders might be added for use at short ranges.

4. The reduction to a single calibre of the heavy gun armament, and the adoption of a 3-inch or 4-inch type for small guns would facilitate the supply of ammunition, and in view of the alarming expenditure of projectiles, the proportion of ammunition carried would have to be considerably increased. On the 10th August the Japanese could not profit by their victory as they had run out of their heavy shells. Similarly, at the battle of Tsushima, the Russians ran short, and this shortage of ammunition may have been the reason of Nebogatoff's capitulation.

5. One type of gun, one single projectile for the heavy artillery, to facilitate supply; the shells to be of steel, capped and charged with a high explosive.

6. The hull should be protected by armour deeper below the water-line than at present, which should also be carried higher up the hull, so as to prevent the destruction of the decks.

7. The guns should for preference be in pairs and mounted in turrets. Those which were in casemates have been, during the late war, easily put out of action and their shields completely destroyed.

8. Injuries to the rudder and steering gear having been frequent, it is necessary the stern of ships should be protected; and as many of the stations for the transmission of orders, electrical and hydraulic, have also been destroyed, these must be placed under the armoured decks behind armour.

9. At a long range what is visible of a ship is the superstructure. In our ships, as in those of Russia, this is very heavy; the masts are too large, and carry tops too heavy for light guns. All this makes an admirable target, and if a mast is shot away it causes the death of a number of men. The masts, then, must be reduced and made as light as possible. A range-finding position on each mast is all that is necessary.

10. The superstructure being destroyed, there are no more small guns to repel torpedo-boat attacks; from this it follows that the light guns ought to be grouped under an armoured deck, or protected if placed on the upper deck. The magazine should also be placed as near as possible to each battery.

11. Following the same order of ideas, the funnels should be modified and some measure of protection given them.

12. For the same reason the conning-tower should not be so much in sight, should not be so high, and should be better protected.

13. The wireless telegraphy room should not be in one of the masts; a station below the armoured deck should be sufficient. The consequences of the measures indicated in Paras. 9, 10, 11, 12, and 13 should have the effect of lightening the upper part of the ship, of lowering the centre of gravity, of rendering her more stable and seaworthy, of reducing her visibility to the enemy, and in any case of preserving her armament.

14. Battles taking place at long ranges, the ram is useless; it can be done away with without inconvenience.

15. For the same reason, in large ships the torpedo-tubes have no *raison d'être*; the space they occupy, as well as the stowage for the torpedoes would be better employed for shell stowage.

16. No armour having been penetrated, its thickness can be diminished, and parts of a ship which have not been up to the present protected, or have been badly so, should now be covered. It is, above all, important that the side behind which are the magazines and ammunition supplies should be well armoured. The gain in weight from the suppression of the ram and torpedo-tubes could be used for the armament and ammunition.

17. Finally, the battle ranges having considerably increased, it is necessary that the gunners should be continually exercised at long-range target practice, and that all ships should consequently be furnished with several range-finders, and all the guns with telescopic sights.

On the other hand, it is expedient that battle-ships should be protected against the torpedo.

For this object it would seem advisable to give all ships a double hull, with numerous water-tight compartments, which should be filled with coal, or a cofferdam with cellulose, etc.—whatever may be best fitted to weaken the effects of the explosion.

And, lastly, it is necessary to take into account the factor of speed. It was thanks to his speed that Togo was able, on the 9th February, and at Tsushima, to follow the Russians, step by step, to place himself in the most favourable position for making his fire effective, to bar their route and pursue them. All naval nations are laying down battle-ships which are to steam between 19 and 20 knots. An 18-knot trial speed, which represents a sea speed of 16·5 knots, is absolutely insufficient.

Most of these lessons have already been laid to heart by officers and technicians, but ordinary common-sense can see the value of most of them.

(To be continued.)

The New Programme.—M. Lockroy, the well-known ex-Minister of Marine, has addressed another letter to the *Temps* on the subject of the New Battle-ship Programme. It is interesting to note than on some important points he is in complete agreement with M. Bos, the Reporter of the Estimates:—

"If we possess a large number of heterogeneous ships dissimilar both in form, power, disposition of the armament, tonnage, and speed, it is not only because views of homogeneity have been wanting, but also because with regrettable sagacity we have tried to foresee all the exceptional cases in which special types of vessels could be made use of, and this endeavour to satisfy all needs has often caused the chief object to be lost sight of—that of having a good war fleet.

"This constant care to provide for improbable eventualities is responsible for a number of inferior vessels, and has vitiated nearly all our naval designs. Hardly a day passes that I do not receive letters from naval officers, engineers, and even civilians, who encourage me to persist in urging this point of view, and expose a failing which is really a matter of national importance.

"I hear that M. Charles Bos, Reporter of the Budget, has written to the Minister of Marine on this subject, begging him again to assemble the Superior Council of the Navy. My thanks are due to him for his action. We must not allow our future battle-ships to be conceived in

the same spirit as those we have now. By trying to do too much, besides augmenting the price of the vessel, we take away something of its power; paradoxical as this may seem, it is nevertheless the truth.

"I will give an example: In our modern battle-ships we have provided for the case when they may find themselves within 400 or 500 yards of the enemy, by giving them considerable torpedo equipment. At first the apparatus was placed above the armoured deck; but it was pointed out that during a fight this would be risky, as a shell striking a torpedo would produce a dangerous explosion. It was therefore moved below the armoured deck, and a submarine discharge invented. I need not recall the accidents which these submarine tubes have given place to; they are well known. I will confine myself to noting that these compartments, where all the apparatus and torpedo magazines are located, might have been used to better advantage, as, on account of want of space (though the improved rapidity of fire of our guns necessitated larger supplies of ammunition), we see that the heavy guns of our ships of the 1900 programme are only supplied with 60 rounds a gun—a ridiculous amount, which places us in a state of inferiority to every other Navy in Europe. It was because of the small capacity of our magazines that Sir William White was able to jeer at us when he wrote to the *Times* that when the French ships had exhausted all their projectiles his vessels would still have sufficient remaining to put their adversaries *hors de combat*.

"But is it likely that in battle two opposing ships will ever find themselves within 500 yards of each other? If we examine the matter the answer can only be in the negative. There is no single case in recent warfare, either in the Chilo-Peruvian, Hispano-American, Chino-Japanese, or Russo-Japanese wars, in which large ships have made use of the torpedo; on no single occasion have they been near enough to discharge these submarine projectiles. It was at distances of 3,000 to 6,000 yards that the artillery decided the victory, and at equally long ranges this will be the case in the future, as the range of modern guns will more and more compel adversaries to keep at a distance. What has come to pass on land cannot but be equally true at sea. If by an extraordinary accident a ship should get within 500 yards of the enemy, it would be because she had become so shattered as to be on the point of giving up the struggle. To fire a torpedo then would be a work of supererogation. We are thus diminishing in our vessels the value of the arm which has been proved by war to give them an arm which they will never find occasion to use.

"Destroyers, torpedo-boats, and submersibles are the proper craft to make use of this formidable engine; but at distances comparable with its power. Naval tactics have assigned to these small vessels their particular rôle in war, and it would be folly to underrate their importance; but at the same time, it is useless to borrow their special weapon and place it in ships which have neither their rapidity of movement nor their dimensions nor any of the characteristics which make them dangerous, and give them the power of usefully making use of this submarine projectile.

"On future war-ships all torpedo apparatus should disappear. The space which this will give will allow of a reasonable increase in the heavy gun ammunition. With the extraordinary firing capacity of modern guns, at least 200 rounds should be provided for each; this is the minimum quantity, and it cannot be carried without sacrifice in some direction. The torpedo, as has been said, must be ruled out, and the ships enabled to sustain a long artillery duel and perform their proper part in battle.

"The ram, which is a heavy weapon destined for the destruction of an enemy by shock, has been preserved in our vessels through memories of the battle of Lissa; but we should reflect that this battle was a surprise, and we must look upon it as a feat of arms of another age. When will our modern vessels ever find themselves in a position to use their rams? Artillery has singularly changed all this; boarding is a thing of the past, tomahawks and pikes and other such weapons have been rightly abolished, why not also give up the ram? The Japanese in their latest ships have absolutely suppressed it. The saving of weight which has resulted has enabled them to gain power in other directions.

"Of what use are torpedoes if they cannot be fired, and of what use is the ram if there will never be a chance of ramming? Will it not be better to have a straight bow, simpler and less expensive to construct, and better from the point of under-water resistance and speed? Is it not wise to do away with the superfluous?

"For a considerable time our vessels have been endowed with so-called military masts—enormous erections of iron plating, carrying heavy tops loaded with guns, to which access is given by an internal staircase. From this height it is supposed that a torpedo-boat can be the easier destroyed. The weight of this structure is considerable. The Germans have lightened it by replacing the rivets by weldings; we have done nothing in this direction, and this mass still burdens our battle-ships, though the experiences of the late war showed that not only could it be profitably abolished, but also that this was most advisable. Military masts have been of little use, and are a source of danger. Several times shells pierced the masts, and there was a fear of their collapse. Imagine the smash and destruction that would be caused on deck by the fall of this column of metal, carrying its complement of guns. It would be simply destruction and the end of all things; no vessel could survive such a catastrophe. Simple prudence demands the abolition of these military masts and the substitution of signal masts—light poles, which offer a small target, and which, if they should fall will not cause irreparable damage and disaster. The small guns that have been carried aloft should be placed under the protection of the battery armour. The general security would be greater, and the economy in weight would allow of an increase to the other military qualities of the ship.

"And while we are spending so much money on engines of war, whose utility is far from having been demonstrated, a great deal of necessary progress has been neglected. Is there anything worse conceived and less suited to its functions than the conning tower in our ships—the post of the captain during battle, and where everyone admits it will be impossible for him to remain—a small steel cage, whose walls are hung with instruments and apparatus of all kinds, where officers and men are packed together like sardines in a box, and where it is hardly possible to turn round to look through the narrow slits provided for the purpose; and it is from this position that the battle is to be directed. Certainly reform is required here. In such a ho'e no one can have the necessary freedom of mind to perform his duty in action.

"With economy of weight, economy of space, and consequent economy of money, we ought to be able to increase the power of the future battle-ship; but whatever the economies introduced, it will always be necessary to increase the armament and speed of our future ships, giving a tonnage which I will call extreme tonnage—for there is a limit which cannot be passed. It should be fixed for battle-ships at 18,000 or 19,000 tons—the figures attained by nearly all foreign Navies. And consequently it would

appear to be a mistake to limit the size to 16,000 tons, as we have done in our new programme—a limit which, if persevered in, condemns us to the adoption of numerous inferiorities.

“Perhaps it would have been better to decide first what are military necessities, and then to settle on the required tonnage. We must abandon old traditions; the safety of our Fleet requires something more.”

GERMANY.—*Launch.*—The new first-class battle-ship “Hannover” (ex “P”) was launched on the 29th September from the Imperial Dockyard, Wilhelmshaven. Her dimensions are as follows:—Length, 430 feet 2 inches over all, 397 feet 6 inches between perpendiculars; beam, 72 feet 10 inches; mean draught, 26 feet, with a displacement of 13,000 tons. Protection is afforded by a complete water-line belt of Krupp steel, with a maximum thickness of 9·8 inches amidships, tapering to 5·9 inches and 3·9 inches at the extremities; above the water-line belt is another, 7·9 inches thick, reaching to the main deck, forming a central citadel, some 240 feet long, while on the main deck is a casemate battery for the secondary armament, protected by 6-inch armour; the barbettes for the heavy guns are protected by 11-inch armour, with hoods of the same thickness, and the casemates on the upper deck for four of the 6·7-inch guns are 6-inch; the transverse bulkheads are 6-inch, the foremost conning tower 11·8-inch, and the after one 6-inch. The engines are to develop 16,000-I.H.P., giving a speed of 18 knots, steam being supplied by 12 Schultz-Thornycroft water-tube boilers. The ordinary coal storage will be 800 tons, which can be increased to 1,800 tons, with 200 tons of oil fuel. The armament consists of four 11-inch guns, mounted in barbettes fore and aft, fourteen 6·7-inch Q.F. guns, ten in the main battery and four in casemates on the upper deck, twenty-two 3·4-inch guns, with eight machine guns. There are some slight improvements in the ships of this class over those of the “Braunschweig” type; the armour belt is 8 of an inch, the citadel armour 2 inches, and the battery casemate 1 inch thicker than in the earlier ships, while the four 6·7-inch Q.F. guns on the upper deck have been placed in separate casemates instead of in turrets.

It is stated that the new battle-ships of the “S” class will be 442·9 feet long, with a beam of 78·7 feet, mean draught of 26·6 feet, on a displacement of 16,000 tons. The armament is to consist of eight 11-inch and twelve 7·4-inch guns, while the speed is to be 19·5 knots.

New Docks.—The construction of the three new dry docks in Wilhelmshaven has entered on its final stage. No. IV., which was the first taken in hand, is so nearly ready for use that it is hoped that the lately launched battle-ship “Hannover” will shortly be able to be docked there. Docks V. and VI. are so far advanced that their walls are now above the level of the water, and the diving-bell which has been in use is now no longer required. The work on these two docks will have to be suspended until the spring, as it cannot be carried on during the winter.

The new large floating dock for use at Tsing-tau, Kiao-chau, has now been completed, launched, and is ready for use. Its dimensions are as follows:—Length, 410 feet; width over all, 128 feet; and the inside measurement 98 feet, while the height is 62 feet. It is, therefore, the largest floating dock in existence. It consists of five independent pontoons, and two side walls, and it is capable of raising 14,000 tons. It is worked by electric power furnished by the central station at Tsing-tau, and the

electric lighting permits work to be carried on at night. With its ten pumps in action it is possible to empty the caissons in two hours. The dock will, of course, be available for ships of the Mercantile Marine as well as for war-ships.

Loss of Destroyer "S 26."—On the evening of the 17th ult., a disastrous collision occurred between the cruiser "Undine" and the destroyer "S 26," which was the leading vessel of the Fourth Torpedo-boat Division, off the Bulk Lighthouse at the entrance of Kiel Bay. The Fourth Division was engaged in tactical night exercises against the "Undine," which was steaming with her lights out. The cruiser suddenly turned her search-light on, and those in charge of the destroyer appear to have been completely dazzled by the light, with the result that she ran across the "Undine's" bow. The boat seems to have sunk as the result of her boiler exploding, one officer and 32 men going down in her. Divers have been down, and report that the destroyer is lying in the mud with a list to port. "S 26" was comparatively a new vessel built by the Schichau Company at Stettin, and had a displacement of 420 tons, with a speed of 28 knots.

Distinguishing Marks of German War-ships.—The system of distinguishing German battle-ships by rings painted on the funnels, which has been in vogue for some time, is to be still further extended. With the entrance of the "Preussen" into the battle fleet, and the later joining of the new battle-ship "Hessen" and the "Kurfürst Friedrich Wilhelm," as well as the transfer of the "Kaiser Friedrich III." from the first to the second squadron, the rings on the funnels of the various ships will be as follows: Battle-ships — "Wittelsbach," one black; "Zähringen," two black; "Mecklenburg," three black; "Wettin," four black; "Kaiser Friedrich III.," one white; "Kaiser Karl der Grosse," two white; "Kaiser Wilhelm der Grosse," three white; "Preussen," one red; "Braunschweig," two red; "Hessen," three red; "Elsass," four red; "Kurfürst Wilhelm," one yellow; "Wörth," two yellow; "Brandenburg," three yellow; "Weissenburg," four yellow. Cruisers—"Friedrich Karl," one black; "Hamburg," two black; "Medusa," three black; "Arcona," four black; "Prinz Heinrich," one white; "Berlin," two white; "Ariadne," three white; "Frauenlob," four white. Tenders—"Blitz," one black; "Pfeil," one red. The flag-ship "Kaiser Wilhelm II." will not have any ring round her funnel.

The Health of the Navy.—The health report of the German Navy during the service year 1902-3 has been published, and affords very satisfactory reading. Since 1889 the disease rate has been reduced by 26 per cent. of the effective. Since 1898 the reduction has been uninterrupted until the death-rate has reached the low figure of 5.55 per 1,000.

This result is due to the efforts to improve the hygienic conditions. Special attention has been paid to the men's quarters. The first improvements were made on the battle-ships of the "Kaiser" class, where the quarters were made more lofty—more airy, therefore—and better lighted. The ventilation of the engine rooms and stokeholds received special attention. Greater attention still has been paid to this on the battle-ships of the "Wittelsbach" class, in which the ventilation is such that excessively high temperatures are avoided even in the most unfavourable positions. From 1899 to 1901 the cases of heat apoplexy

numbered 117, of which 22 occurred on land during the China expedition. In 1901-2 there were only 19 cases, and in 1902-3, with an ever-increasing Navy, only 22 cases, of which those in the engine rooms and stokeholds were purely accidental. The vessels are heated in winter by means of steam. All the lighting is by electricity. It has of course not been possible to carry out the sanitary improvements in the smaller vessels to the degree reached in the battle-ships, but it has been done as far as circumstances would allow. Fresh meat is the order of the day, and the refrigerators enable this to be served even during the longest voyages. The food is abundant and varied, and its nature, as in the Army, is controlled by the medical officers. There is a vigorous campaign against alcoholic drinks, the use of which is decreasing, while that of tea, coffee, lemonade, and acidulated drinks is increasing. The grog allowance has not been formally stopped, but the substitution has been authorised of tea and coffee, and is generally prevalent. Grog is still served as a stimulant in exceptional cases of extreme fatigue. Scurvy, formerly so prevalent, has practically ceased to exist, there being only one case from 1899 to 1903, and that on land during the China expedition. In 1902-3 the number of cases of acute or chronic alcoholism was only 27—that is to say, 0·19 per 1,000 of the effective. The supply of drinking water is carefully watched, and where there is the least doubt as to its wholesomeness the water is boiled. Baths are frequent, and men from the engine-rooms and stokeholds can take a warm bath each time they come off duty. Cold baths are largely used in warm weather. The teeth of the men are examined at regular intervals, and the men are instructed in the care of the teeth, and are supplied with tooth brushes. The junior surgeons are expected to study dentistry, and later to qualify as dentists. That the improvement in sanitary conditions is not confined to the German Navy is shown by the health report of the garrison of Kiao-chau, where the proportion of deaths per 1,000 to the total effective for the four years ended 1903 has been respectively 17·39, 15·84, 11·70, and 10·57.—*Marine Rundschau*, *Neue Preussische Kreuz-Zeitung*, and *Neue Militärische Blätter*.

Cost of the Fleet.—The cost of the Fleet in commission is distributed as follows:—

		1905.		1904.	
		Marks.	£ s.	£ s.	
1. <i>The Battle Fleet.</i>					
Active Squadron	...	8,033,330	(401,666 10)	350,543	14
Reserve	...	692,208	(34,610 8)	17,556	12
Scouting Division	...	3,410,814	(170,540 14)	169,240	4
Torpedo Flotillas	...	1,871,606	(93,580 6)	90,702	14

Total ... 14,007,958 (700,397 18) 637,043 4

Showing an increase of 1,267,094 marks (£63,354 14s.) as compared with last year.

2. *Ships on Foreign Stations.*

The China Station	...	4,805,664	(240,283 4)	250,657	4
The Australian Station	...	502,344	(25,117 4)	24,975	12
The West African	...	305,304	(15,265 4)	15,829	4
The East African	...	497,784	(24,889 4)	24,778	4
The American	...	1,648,416	(82,420 16)	84,339	12
Constantinople Stationaire	...	74,772	(3,738 12)	3,726	12
Surveying Duties	...	144,948	(7,247 8)	7,787	8

Total ... 7,979,232 (398,961 12) 412,093 16

Showing a decrease of 262,644 marks (£13,132 4s.) as compared with last year.

	1905.		1904.
3. Training Ships.	Marks.	£ s	£ s.
Cadets' and Boys' Training Ships	1,077,840	(3,892 0)	53,776 16
Gunnery School Ships	1,523,880	(76,194 0)	65,640 0
Torpedo School Ships	889,637	(44,481 17)	37,736 1
Submarine Mining	85,470	(4,273 10)	1,217 2
Coast Pilotage	49,661	(2,483 4)	1,907 14
Total	3,626,491	(181,324 11)	160,277 13

Showing an increase of 420,938 marks (£21,046 18s.) as compared with last year.

4. Special Service Ships.			
Imperial Yacht "Hohenzollern"	376,116	(18,805 16)	19,255 16
Surveying Ships (Home waters)	34,980	(1,749 0)	1,699 10
Torpedo Experimental Ship	848,736	(42,436 16)	30,602 8
General Experiments	183,888	(9,194 8)	9,644 8
Fishery Protection	167,206	(8,360 6)	9,937 4
Total	1,610,926	(80,546 6)	71,139 6

Showing an increase of 188,140 marks (£9,407) as compared with last year.

5. For Special Purposes	900,751	45,037 11	27,732 3
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COMBINED TOTAL.

Battle Fleet	14,007,958	(700,397 18)	637,043 4
Foreign Service	7,979,232	(398,961 12)	412,093 16
Training Ships	3,626,491	(181,324 11)	160,277 13
Special Service Ships	1,610,926	(80,546 6)	71,139 6
Special Purposes	900,751	(45,037 11)	27,732 3
Total	28,125,358	(1,406,267 18)	1,308,286 2

Showing an increase of 1,959,636 marks (£97,981 16s.) as compared with last year.—*Etat für die Verwaltung der Kaiserlichen Marine, 1905.*

UNITED STATES.—*Launch of the "Mississippi."*—The U.S. battle-ship "Mississippi" was launched with great success at the yards of the William Cramp Ship and Engine Company, her builders, at Philadelphia, Pa., on 30th September.

The "Mississippi" is a vessel of 13,000 tons, and a sister-ship to the "Idaho." The general dimensions are as follows:—Length, 375 feet; beam, 77 feet; mean gross draught, 27 feet 1½ inches; total coal bunker capacity, 1,750 tons. The main battery consists of four 12-inch, eight 8-inch, and eight 7-inch breechloading rifles, and two 18-inch submerged torpedo-tubes. The secondary battery consists of twelve 3-inch Q.F. guns, six 3-pounders, four 1-pounders, two 3-inch field pieces, two machine guns, and six automatic guns, calibre 30. The 12-inch guns, arranged in pairs, are in two electrically-controlled, balanced, elliptical turrets on the centre line, one on the upper deck forward and the other on the main deck aft, with an arc of fire of about 270° and 250° respectively.

The hull of the "Mississippi" and her sister-ship is protected at the water-line by a complete belt of armour 9 feet 3 inches wide and of a uniform thickness of 9 inches for about 244 feet amidships, forward and aft, of which the belt is reduced in width, and the thickness is gradually decreased to 4 inches at the stem and stern. Triangular athwartship armour in wake of water-line belt is 7 inches uniform thickness. There is a complete protective deck extending from stem to stern, the deck

being flat amidship, but sloped at the sides throughout and at each end. The big armament which the "Mississippi" carries is in the nature of an experiment for a 13,000-ton ship. She will be able to hurl a tremendous fire, and in action will rank as one of the most formidable of the fighting machines, though lacking the radius of action of the other new battle-ships.

The "Mississippi" is equipped with triple-expansion twin screws of 10,000-I.H.P., fitted with eight Babcock & Wilcox water-tube boilers, set in water-tight compartments. Her contract speed is 17 knots. Except for the windlass and steering gear, practically all the other machinery will be run by electricity. Wireless telegraphy apparatus will be installed, and, in fact, the "Mississippi" is so equipped as to equal in every way the highest standard of requirement for a modern war-ship. There are commodious quarters provided for the crew of 750 officers and men, fitted in the most up-to-date manner, with special attention paid to sanitary needs.

The cost, exclusive of armour and armament, was not to exceed 3,500,000 dollars. The sister vessel, the "Idaho," is also being built by William Cramp & Sons.

Progress on Naval Vessels.—The following was the degree of completion, as per official report issued on 10th August, of vessels under construction for the United States Navy :—

A, speed, knots; B, per cent. of completion 1st July, 1905; C, 1st August.

Battle-ships.

Name of Vessel.	A	Building at	B	C
"Virginia" -	19	Newport Ns., S.B. & D.D. Co.	89-71	91-37
"Nebraska" -	19	Moran Bros. Co.	75	77
"Georgia" -	19	Bath Iron Works	82-66	85
"New Jersey" -	19	Fore River S.B. Co.	86-2	87-7
"Rhode Island" -	19	Fore River S.B. Co.	88-8	92-1
"Connecticut" -	18	Navy Yard, New York	80-74	83-67
"Louisiana" -	18	Newport Ns. S.B. & D.D. Co.	80-79	82-81
"Vermont" -	18	Fore River S.B. Co.	53-6	57-1
"Kansas" -	18	New York S.B. Co.	55-1	57-8
"Minnesota" -	18	Newport Ns. S.B. & D.D. Co.	68	69-9
"Mississippi" -	17	Wm. Cramp & Sons	31-28	34-48
"Idaho" -	17	Wm. Cramp & Sons	29-57	33-22
"New Hampshire" -	18	New York S.B. Co.	11-2	15-2

Armoured Cruisers.

"California" -	22	Union Iron Works	78-3	80-4
"South Dakota" -	22	Union Iron Works	76-1	78-9
"Tennessee" -	22	Wm. Cramp & Sons	79-40	82-02
"Washington" -	22	New York S.B. Co.	79-1	82-03
"North Carolina" -	22	Newport Ns. S.B. & D.D. Co.	9-14	12-2
"Montana" -	22	Newport Ns. S.B. & D.D. Co.	7-98	10-81

Protected Cruisers.

"St. Louis" -	22	Neafie & Levy S. & E.B. Co.	67-4	71-4
"Milwaukee" -	22	Union Iron Works	75-2	79
"Charleston" -	22	Newport Ns. S.B. & D.D. Co.	97	99

Gun-boats.

Name of vessel.	A	Building at	B	C
"Paducah" - - -	12	Gas Engine & Power Co.	- 88.9	92.4

Training-ships.

"Cumberland" -	Sails	Navy Yard, Boston	- 95	95
"Intrepid" -	Sails	Navy Yard, Mare Island	- 97.5	97.5

Scout Cruisers.

"Chester" - - -		Bath Iron Works - - -	0	0
"Birmingham" -		Fore River S.B. & D.D. Co.	0	0
"Salem" - - -		Fore River S.B. & D.D. Co.	0	0

Torpedo-boats.

"Goldsborough" - - -	30	Wolff & Zwicker - - -	99	99
"O'Brien" - - -	26	Lewis Nixon - - -	99	99

Colliers.

"Erie" - - -		Navy Yard, New York - - -	0	0
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Submarine Torpedo-boats.

No. 9 - - - -		Fore River S.B. Co. - - -	0	12.6
No. 10 - - - -		Fore River S.B. Co. - - -	0	11.5
No. 11 - - - -		Fore River S.B. Co. - - -	0	11.5
No. 12 - - - -		Fore River S.B. Co. - - -	0	11.5

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MILITARY NOTES.

NOTE.—The following are the principal appointments which have been made:—

Lieut.-Generals—Lieut.-General Sir G. Luck, K.C.B., to be Lieutenant of the Tower of London. Lieut.-General Sir H. J. T. Hildyard, K.C.B., a Lieut.-General on the Staff, to be a General Officer Commanding-in-Chief.

Major-Generals—Major-General Sir H. H. Settle, K.C.B., D.S.O., to be a Commander of Coast Defence. Major-General Sir L. J. Oliphant, K.C.V.O., C.B., Commanding London District, to be Lieut.-General. Major-General J. H. Wodehouse, C.B., C.M.G., Commander 2nd (Rawal Pindi) Division, to be Lieut.-General.

Colonels—Colonel A. W. Thorneycroft, C.B., from an A.A.G., to be a Brigadier-General, to command an Infantry Brigade, and is granted the temporary rank of Brigadier-General while so employed. Lieut.-Colonel and Brevet Colonel F. S. Inglefield, D.S.O., from h.p., to be an A.A.G., and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel F. B. Buist, from A.S.C., to be an Assistant Director of Supplies and Transport, and is granted the substantive rank of Colonel in the Army. The undermentioned Colonels on the Staff to

be Brigadier-Generals: Colonel (local Brigadier-General) J. E. W. S. Caulfeild, Commanding the Troops in Jamaica; Colonel T. E. Hickman, C.B., D.S.O., Commanding Middelburg (Cape Colony) Sub-District; Colonel (local Brigadier-General) C. J. Blomfield, C.B., D.S.O., Commanding Harrismith Sub-District; Colonel (local Brigadier-General) C. T. E. Metcalfe, C.B., Commanding the Troops, Mauritius; Colonel (local Brigadier-General) W. R. Kenyon-Slaney, Commanding Middelburg (Transvaal) Sub-District; Colonel (local Brigadier-General) J. F. Burn-Murdoch, C.B., Commanding Potchefstroom Sub-District.

To be Brigadier-Generals in Charge of Administration: Colonel C. E. Beckett, C.B., from a Colonel on the Staff; Colonel R. J. F. Banfield, C.B., from a C.S.O. (graded as an A.A.G.); Colonel J. Hotham, a Colonel on the Staff for Royal Artillery; Colonel T. P. B. Ternan, C.M.G., D.S.O., from an A.A.G.

The undermentioned Colonels on the Staff for Royal Engineers to be Chief Engineers: Colonel C. Wilkinson; Colonel H. E. Rawson, C.B.; Colonel J. W. Sill; Colonel C. H. Darling; Colonel W. J. MacKenzie.

To be Assistant Directors of Supplies and Transport: Colonel W. A. Dunne, C.B., a Director of Supplies and Transport; Colonel S. H. Winter, a Colonel on the Staff; Colonel G. P. Bourcicault, a Colonel on the Staff.

AUSTRIA-HUNGARY.—*Regulations on Cavalry Dismounted Action.*—

These regulations, which have been recently altered, lay down, in principle, that cavalry should never resort to dismounted action except when it cannot otherwise accomplish the mission with which it has been entrusted, and when there are no infantry present. The necessity for this action may occur in the security service of large independent cavalry units, in the attack or defence of important points when the cavalry finds itself temporarily alone, and during strategic missions on the flanks or rear of the enemy.

In the defensive, the cavalry looks out, above all, for an extended field of fire, and the position is, from the first, strongly occupied; dismounted men are not held in reserve as long as the enemy's intentions are not known. Every effort is made to artificially reinforce the position by means of cover or obstacles. If it is intended to defend the position to the last, fire is not opened at too great ranges, so that the ammunition may not be expended when the decisive moment of the action arrives, if, on the other hand, it is only the intention to delay the enemy, without seriously engaging him, long-range fire is resorted to. Should the enemy retire, the dismounted fractions should only continue to fire at him.

In the offensive, an endeavour is made to bring every available carbine into action from the commencement, so as to make certain of rapidly obtaining fire superiority, that is to say, only a few men are held in reserve to guard against the unexpected. Every possible effort is made to get as close as possible to the objective under cover, and to open fire by surprise. Superiority of fire once obtained, the advance is continued until the enemy can be pursued by carbine fire; the final pursuit devolves on the fractions which remained mounted. Should the cavalry unit, which has to fight dismounted, consist of several squadrons, the dismounted action will be carried out by complete squadrons. Those which are not required in this action, form a mounted reserve ready to use the *arme blanche* (pursuit, safety of flanks, protection of led horses, or the retreat). This mounted reserve is placed under cover as close as possible to those fighting dismounted, so as to be able to add its shock action to that of

the fire. Should there be no mounted reserve to cover a retirement of those fighting dismounted, or if it is unable to intervene, that duty must be carried out by successive units of the firing line.

There are two methods of dismounting for fire action. The first is to dismount three men out of every four, the latter remaining mounted. This allows the horses to be led and to be brought up close to those fighting dismounted, when the latter wish to break off the action. By this method, however, a quarter of the carbines are not employed. The second method brings every carbine into action. The first rank of each troop takes ten paces to its front, and the whole troop dismount. The horses of each rank are tied together by means of a snap-hook, with which the picketing ropes are provided, they are then formed in a circle, their heads inwards. The horse-holders, always one per troop, keep in the centre of the circle. The non-commissioned officers, armed with the revolver, take the carbines and cartridges of the horse-holders. This method renders the horses immobile, and is only employed when safety is ensured, and when it is certain that there will be ample time for mounting at leisure.

It has been already said that as a rule the entire squadron carries out dismounted action at the same time, when several squadrons are present. In the squadron the troop is the manœuvre unit for both mounted and dismounted action. Usually, under fire, it moves at racing speed from cover to cover, either all together, or by sections (the troop consists of 3 sections, called patrols). As a rule, the advance is always made by *échelons*, the units in position supporting those moving by their fire; in the troop, by sections; in the squadron, by entire troops; and when several squadrons are engaged side by side, by entire squadrons. The men of the troop, grouped, may remain in two ranks or advance in open files at once pace interval; in the latter case they form rank entire for firing. When they deploy into line of skirmishers, they take, as a rule, one pace per man in each section, and the intervals between the sections and the troops are preserved. In the carrying out of rushes the troop commander leads the base section to the new position, the other sections conforming to his movement.

The kind of fire used is individual fire, which, says the regulation, is the only one which allows full use to be made of the skill of the marksman and of the ground. Whilst formerly, this sort of fire was only used by skirmishers, it is now also used by the troop, grouped; with this object the interval between the men has been increased from two to four inches in close order. The rapidity of the individual fire is regulated by the words of command: "Very slow," "Slow," "Quicker." Volley firing, which was formerly the rule, is no longer used except for ranging, or for a short time on large objectives visible at a great distance. It is carried out by troop or by section, whereas formerly, it was only carried out by troop. For ranging purposes men deployed as skirmishers may be ordered to fire volleys. Rapid fire is no longer mentioned in the regulation.

Troop and squadron commanders are responsible for the conduct of fire, over which the superior officers confine themselves to exercising a supervision. The conduct of fire consists in the selection of a firing position, the judging of distance, the choice and indication of the target, the nature of the fire, the observation of the results, the saving of ammunition and its supply, and the breaking off of the firing. Squadron commanders observe the effects of the fire, lead their men, and take care they fire on the right objective and with the proper sights, and stop

the firing when the objective has disappeared. As a rule, they do not take part in the firing. In the squadron the firing is usually carried out by the troop. The moment for its commencement is indicated by the captain, the troop commanders select the firing positions. According to circumstances, every troop of the squadron is either immediately deployed, or one or two are at first kept in reserve. The troops deployed regulate their advance by movements of the troop of direction. The units in position direct their fire in conformity to the movement of those they replace. The troops held in reserve follow the advance of the skirmishing line in an appropriate formation until they are ordered to join it.

The troop in close order fires either standing or with the first rank kneeling, and the rear rank standing, or with the front rank lying down, and the rear rank kneeling. These prescriptions do not seem very judicious; as a matter of fact, firing in single rank is the only practical method, especially with the carbine. They are also in contradiction to the rules laid down in the regulations that it is of capital importance to offer as small a target as possible to the enemy. Indeed, they recommend that such positions should be occupied as would permit the enemy to, with difficulty, see the units firing on him, or to direct his own fire on them, and with this object the nature of the background, screens and cover should be taken into account. The regulations also lay down the necessity for avoiding placing oneself near objects at a distance from neighbouring objects, unless they, at the same time, afford very good cover or unless the circumstances of the fight absolutely compel them to occupy them.

In short, as may be seen from the preceding summary, except from the rules permitting it to be inferred that under certain exceptional conditions the troop would remain in two ranks, the new regulations for the fire action of the Austro-Hungarian cavalry are really practical and of a nature to make the cavalry more flexible and more fit for dismounted action, viz.:—Vigour of action by putting into the field as rapidly as possible, all available rifles; individual fire, as a rule, to give all its value to the fire; linking of formations made as thin as possible, so as to take advantage of the ground (two paces per man and intervals between units); and combination in the advance and in the fire by employing *échelons* mutually relying on one another.

The Imperial Manœuvres, 1905.—These manœuvres, which took place in Southern Bohemia from the 4th to the 7th September, were held in the same district as those of last year, when the great drought compelled the postponement of the operations. This district extends to the Wattawa, the first large affluent of the Moldau. The terrain of the manœuvres, covered with blocks of forest and ponds, lent a special interest to the operations; the Wattawa, an obstacle only passable on bridges, and its right affluent, the Blanitz, increased still further the difficulties of the country.

The present tendency to manœuvre with units on a war footing was apparently followed by the dispositions taken. The higher commands were completed up to strength; the Reservists were called out *en masse*; and the supplies were organised on a war footing. The supply of blank ammunition consisted of 50 rounds per repeating rifle, 20 per carbine, 30 per short repeating rifle, 3,000 per machine gun, 100 per gun, and 96 per howitzer. In addition, a small ammunition park followed each division. Divisions and independent brigades had each its own medical

staff. Units which took part in manœuvres of previous years, such as infantry and cavalry telegraph patrols, telephone sub-divisions, the two balloon sections (kites and spherical), mobile field bakeries, and the field post again assisted this year, as well as a large number of bicycles, motor cycles, and automobiles.

The following was the distribution of the troops at the commencement of the manœuvres :—

Northern Force (IXth Army Corps).—10th Division (13 battalions, 3½ squadrons, 16 guns), 29th Division (17 battalions, 3 squadrons, 16 guns), 26th Landwehr Division (15 battalions, 2 squadrons, 16 guns), 9th Cavalry Brigade (12½ squadrons, 4 machine guns). In addition there were 2 regiments of corps artillery, 1 field howitzer regiment, and 3 pioneer companies.

Southern Force (VIIIth Army Corps).—9th Division (14 battalions, 3 squadrons, 16 guns), 19th Division (15 battalions, 3½ squadrons, 12 guns), the 10th Cavalry Brigade (10½ squadrons and 4 machine guns). There were in addition 2 regiments of corps artillery of 16 guns, 1 field howitzer regiment of 10 guns, and from the 5th September, the 21st Landwehr Division (15 battalions, 3½ squadrons, and 16 guns), and from the 6th September, the 4th Division (17 battalions, 2 squadrons, and 16 guns).

These two army corps were supposed to be part of two armies, coming, the one from Prague, and the other from Vienna, and both marching on the Deutschbrod-Znaim line. Whilst the Southern Force manœuvred against the enemy's flank, the latter detached a corps (the Northern Force) with orders to take the offensive and to repulse this attack. A map would be necessary to a detailed account of these operations; thus it need merely be mentioned that the transport by rail of the 4th Division at Wodnau on to the field of battle in 22 hours and by 17 trains (5th-6th September) was rapidly and successfully carried out.

The manœuvres, from a tactical point of view, gave excellent results. At the same time, the dispositions taken compel the admission that, although evidently based on supposition of war, they were nevertheless gradually conducted according to scheme. The two adversaries, for the greater part of the time, were of equal strength; they had an equal force of cavalry, and on the last day the numerically weak force found itself obliged to occupy a position which it defended whilst passing to the counter-attack.

An innovation in the manœuvres was the use of reserve squadrons as divisional cavalry. The squadrons were 140 strong, and showed themselves quite capable for their duty. The rations for the troops were regularly issued; only the patrols, orderlies, etc., had frequently to suffer from not receiving their rations. Of a total of 71,000 men, the number of sick never exceeded 420, or 6 per cent. In spite of the heavy work done by the horses, there were never more than 165 sick out of 11,250 horses. The transmission of orders, reports, and transport was greatly facilitated by automobiles, motor cycles, and motor trucks.

Manœuvres in the Tyrol, 1905.—The south of the Tyrol has frequently been the obligatory theatre of military operations. According to the scheme of those held this year, a Southern Force had arrived at Trent, whilst a Northern Force barred its advance on Bozen by holding the valleys of the Noce and the Cembra.

The *Southern Force* consisted of 18 battalions, 3 squadrons, 3 mountain batteries, 4 howitzer batteries, a sub-division of mountain machine guns, and 3 pioneer companies.

The *Northern Force* consisted of 15 battalions, 2 squadrons, 3 mountain and 4 field batteries, a sub-division of mountain machine guns, and 2 pioneer companies.

The infantry was only partially equipped for mountain work. Only one group of the *Southern Force*, which, before the commencement, had to reach Bozen, passing by the Col de la Gagliarda, was equipped for the mountains, and provided with its convoy of pack animals.

The artillery, provided with mountain guns and batteries of field guns, was formed into regiments. Contrary to what had been published, the field howitzer batteries were not made up into divisions of 3 batteries, but into regiments of 4 batteries. The howitzers—of a special construction—for the first time took part in service in the Alps; they were attached to the *Southern Force*, the field guns to the *Northern Force*, whilst the mountain artillery was equally divided between the two forces. The cavalry of the *Northern Force* was made up of Tyrolean mounted Jaegers, whilst the *Southern Force* had 3 squadrons of the 6th Landwehr Uhlans.

The Linz Pioneer Battalion, with a light bridging equipage, was also divided between the two forces. Each division had an infantry telegraph patrol, capable of laying down 72 kilometres (about 45 miles) of telegraph, with 3 stations and 3 optical signal stations.

The Bakery Division, which consists of 10 units of ovens, could only provide one unit to each division. When stationary, the ovens could turn out 300 rations daily, and half that when on the march; it is drawn by 4 horses, and has a train of 6 wagons for the transport of the tent and the necessary baking material.

The machine guns rendered excellent service, as did the wireless telegraphy. A lengthy and detailed account of these manoeuvres is beyond the province of these notes; it suffices to say that they brought out the qualities of the commanders in a high degree. They were unfortunately somewhat spoilt by the rain, which on the second day commenced to fall in torrents.—*La France Militaire* and *Revue Militaire Suisse*.

CHINA.—*Reform of the Chinese Army*.—The Chinese Army is being seriously reorganised, and it appears, in spite of the doubts of certain sceptics, that the Chinese Government is this time thoroughly resolved to carry the reforms through. Two Chinese officers, now in Europe, viz., Major-General Chang and Colonel Wei, have given the following information on this subject to the Editor of the *Wiener Politische Korrespondenz*:—

“The transformation, now in course of execution, of the military forces of China is sufficiently advanced that one may hope to see them completed in the course of a year. In the accomplishment of this work all upheaval will be avoided, care being taken at the same time not to proceed too slowly. It will readily be understood that the Army will not altogether and at one bound attain to the same degree of efficiency, and that those portions of the Empire where the organisation of the troops has already proved satisfactory, the fruits of reform will develop more rapidly than in other less favoured provinces. The essential is that the Chinese troops, who hitherto have been divided into several armies, widely differing in strength and in military value, will become perfectly uniform as regards the chief administration, training, equipment, dress, etc. This uniformity will be at first manifested by the abolition of the provincial denominations of the armies and by the distribution of the entire Army into army corps designated by numerals.

The branches of the Service are the same as in all modern Armies: infantry, cavalry, artillery, engineers, and transport. The old armament has everywhere been replaced by modern *matériel*. With regard to the uniform, it has been laid down for each branch of the Service throughout the entire Army, as well as badges of rank.

"The training of the troops is conducted throughout the whole Empire according to the same principles and on the same method. All the regulations with regard to command, discipline, leading of troops, military honours, etc., are now the same throughout China. The importance of the introduction of this uniformity in all essential matters cannot be too greatly insisted upon, for it is due to it alone that one can speak of the transformation of the Chinese Army into the Imperial Army.

"Another point not less important for the regeneration of the Army is the abolition of the carrying out of military duties by civilian functionaries, which was by no means rare. Military positions which were formerly given to civilians are now exclusively awarded to members of the Army.

"The period of service, which was absolutely arbitrary, has been regulated. It consists of 3 years in the Regular Army, 3 years in the Reserve, and 3 years in the Landwehr. China is not yet in a fit state to take up the modern principles of obligatory service. They are gradually approaching to it in a certain measure by the regulation compelling each province of the Empire to furnish a certain number of recruits decided upon. This method of recruiting provides a serious guarantee for a better selection of *personnel* than was possible formerly, when everyone might enlist at any spot in the Empire, which made it impossible to obtain proper information on the past life of the recruits. It is impossible to say at present what will be the numerical strength of the Chinese Army a dozen years hence. It may, however, be confidently stated that at the end of this year China will have more than 400,000 Regular troops at her disposal, and that in ten years she will be in a position to put 1,200,000 men in the field. With the new institutions a new spirit has, at the same time, penetrated the Chinese Army. The sentiment of duty and the taste for the military profession has considerably increased amongst the corps of officers, and an activity may be discerned in all ranks of the Army which permit the hope that its transformation will be very shortly crowned with success, and established on a solid basis. The whole of this reform, of such importance to the ulterior development of the entire Empire, is due to the statesman and well-known general, Wan-Chi-Kai, who has put all his energy into the work of creating a modern Army."

Although one need not place unbounded confidence in the optimistic declaration of the two Chinese officers to the Austro-Hungarian journal, one can nevertheless not close one's eyes to the fact that for several years a spirit of reform has been awaking in China, and that the transformation of that country has almost become an accomplished fact. Hundreds of Chinese study in the Japanese schools, and the Japanese professors and instructors have founded and direct schools of every description in China. Chinese cadet officers study, in Germany and in Austria, European methods, and Japanese instructors have almost everywhere replaced Europeans with the Chinese troops. There is every reason to believe that Chinese troops, at least in those provinces where a nucleus of Regular troops has existed for some years, will very shortly become a factor to be reckoned with.

Chinese Grand Manœuvres. — The Chinese Grand Manœuvres, which took place last November (1904), the first which have been held conformably to European methods, were held at about 80 kilometres south-east of Pao-ting-fou, and lasted from 23rd to 29th November. The first and last two days were employed in concentration and disbandment. Regimental manœuvres took place on the 25th and 26th November, and divisional manœuvres on the 27th November. The Director of the Manœuvres was assisted by an officer of the Japanese General Staff, instructor of the school at Pao-ting-fou; but the generals commanding divisions had absolute freedom of action. The troops bivouacked in the open country, making no use of towns and residences. The marches were from 35 to 40 kilometres, and were very well conducted, but there was much to be desired as to the discipline of the men. The two divisions—the 3rd (of the Western) and the 2nd (of the Eastern Armies)—were composed as follows:—3rd Division: Thirteen infantry camps of 400 men each, three cavalry camps of 240 men each, two of artillery of 16 guns each, a camp of 400 engineers, and a train camp of 400 men, making a total of 7,500 men and 32 guns; the calibre of the guns was 75-mm. and 57-mm. 2nd Division: Ten infantry camps of 400 men each, two artillery camps of 16 guns each, one engineer camp of 200 men, and a train camp of 400 men—a total of 5,600 men and 32 guns. Total effectives present were, then, in round numbers, 13,000 men.

A Press despatch dated Peking, 30th October, 1905, gives us some account of the manœuvres of the year. They greatly impressed foreign observers with the progress China is making in the military art. All agree that China has accomplished a wonderful task in raising an Army of 30,000 men to its present efficiency. The generalship was not of the best. For instance, the artillery was injudiciously placed, but control of the troops was complete, and the steadiness of discipline bore comparison with that of European troops. An observer, while riding behind some of the troops lying in cover, noticed that not a man turned his head from his attention to his work. Complete subordination prevailed everywhere. The final march past the reviewing officers was abandoned owing to a furious dust storm. After waiting for three hours the visitors left the ground, yet every regiment still remained, the ranks being in perfect order.

The scheme of the manœuvres was the assumed invasion of Pe-Chi-Li by a southern force from Shan-Tung, whose advance was opposed by the Northern Army. Roughly estimated, 30,000 men were engaged. The final parade showed 20,000 infantry, 1,200 cavalry, 1,100 engineers, 1,300 artillery, and 120 guns.

The infantry was armed with Mauser magazine rifles of the 1888 pattern, with a short dagger bayonet, many having been made at the Han-Yang Arsenal. The officers carried a sword, a revolver, and a field glass. The men's kit weighed 54 lbs. each, the knapsacks being of Japanese pattern. The pioneers carried picks, shovels, and saws, everyone being in full marching order.

The cavalry were armed with Mauser carbines and swords, the officers carrying revolvers. The men were mounted on Mongolian ponies, which, though small, were in good condition. The saddlery and accoutrements were bad, and the men had no spurs. This is regarded by the military observers as the weakest branch of the Army, being unsuitable for work as cavalry or mounted infantry.

The artillery consisted of field and mountain guns. The northern side had twenty-four Japanese 7.5-mm. guns, twelve Krupp guns of the

same calibre, eight Krupp mountain guns, and twelve Japanese mountain guns. The ammunition was carried on mule back. The guns were served excellently, the ammunition being brought up quickly and with little confusion. The officers who sighted the guns and the artillerymen were armed with swords and revolvers.

No signalling apparatus with this corps was observed, and there were few ambulances. The commissaries of each regiment included thirty-two wagons, the harness being of German pattern and badly made.

The rations consisted of 1½ lbs. of rice, 6 ozs. of cabbage, 6 ozs. of salted vegetables, 6 ozs. of meat; this kit was serviceable. The men's queues were tucked under their caps.

The foreigners who witnessed the manœuvres were the guests of the Viceroy, Yuan Shi Kai, and were lavishly entertained. The troops gave many evidences of Japanese training, and one attaché remarked that he had seen twenty Japanese in Chinese uniforms.—*La France Militaire* and *U.S. Army and Navy Journal*.

ITALY.—*Recruiting Results of the 1883 Class.*—According to official documents of the War Department, the results of the recruiting for the 1883 Class were as follows :—

The numbers inscribed on the recruiting lists amounted to 453,640 youths, 344,637 of whom were born in 1883, and 109,003 came from previous classes, as put back, left out, etc. After drawing lots and before the closing of the operations, there were 13,189 youths struck off for various causes. The remaining 440,451 remaining on the lists were thus distributed :—

Rejected	...	...	...	...	98,065
Put back	...	...	...	...	108,618
Failed to appear	...	...	...	...	34,711
Attached to the 1st Category	...	...	...	...	102,130
Attached to the 2nd Category	...	...	...	...	11
Attached to the 3rd Category	...	...	...	...	96,916
Total	...	...	...	...	440,451

From these figures, however, nearly half the numbers inscribed on the lists, 47 per cent., were exempted from service, either permanently or temporarily, on account of deficiency of physique. As regards the men enrolled (1st Category), it is less than a quarter of the numbers inscribed. The Italian recruiting regulations are undoubtedly excessively liberal!

Of the 102,130 men attached to the 1st Category, 86,448 joined their corps and were thus distributed :—

Grenadiers	...	...	...	...	1,303
Infantry of the Line	...	...	...	...	40,089
Alpine Troops	...	...	...	...	5,440
Bersaglieri	...	...	...	...	6,521
Cavalry	...	...	...	...	7,255
Field Artillery	...	...	...	...	6,384
Horse Artillery	...	...	...	...	263
Coast Artillery	...	...	...	...	2,034
Fortress Artillery	...	...	...	...	1,500
Mountain Artillery	...	...	...	...	988
Artificer Companies	...	...	...	...	161
Artillery Train	...	...	...	...	1,280

Engineers	3,064
Engineers' Train	388
Royal Carabiniers	1,176
Medical Companies	1,012
Supply Companies	828
Cadet-Officers' Platoon	345
Cadet-Sergeants' Platoon... ..	417
Total	86,448

It should be mentioned that to these 86,448 recruits should be added :—

1st.—4,485 men already with the colours when the recruiting operations of the 1883 Class were carried out.

2nd.—1,214 men enrolled in the Customs.

3rd.—1,511 students authorised to put back the date of their entry into the Service.

4th.—1,957 inscribed as residing abroad, and, in consequence, exempted from service by virtue of the emigration laws.

Thus the net results of recruiting of the 1883 Class amounted to 95,615 men.

The Manœuvres of 1905.—The theatre of operations was the country to the N.E. of Naples and the neighbouring mountainous district. An invading Southern Force (Red) had landed on the Neapolitan coast, and attempted to repulse a defending Northern Force, which was reinforced in the mountains, and whose object was to drive the enemy back to the sea.

The terrain and scheme of the manœuvres, which took place during the latter end of August last, partook of a special character, which should be noted. They proved, in the first place, that real progress had been made in the defence of the country, and they also demonstrated a lesson drawn from the Russo-Japanese War. The most extraordinary circumstance of that war was that an Army of 500,000 men arrived at the theatre of hostilities exclusively by sea, and by sea, too, was its supply carried out.

The General Idea distinctly stated that the landing had succeeded, and that the invaders had driven back the defenders, who had taken refuge in the Apennines, and was preparing their counter-offensive. The Red Force was to advance along the line of the Volturno, whilst the Blue Force would take advantage of the nature of the ground and advance to meet it and drive it back to the sea.

The direction of the manœuvres was entrusted to General Saletta, Chief of the General Staff, and the troops taking part in them were the following :—

Northern Force (Blue).—The IXth Army Corps, made up of the 17th Division (a Bersaglieri brigade and an infantry brigade), and the 18th Division (2 infantry brigades). In addition, there was a division of mobile militia, the two brigades of which were commanded by two generals of the Reserve. There were also two Bersaglieri regiments; half a regiment of cavalry; one telegraph company; one cyclist company; and six batteries of corps artillery.

Southern Force (Red).—The Xth Army Corps, consisting of the 19th and 20th Divisions, each having 2 infantry brigades, with all the other necessary branches of the Service, as with the Blue Force, and in

addition a cavalry brigade and a battery of horse artillery. This large allowance of cavalry to the Red Force was logically contrary to the situation, being the invaders, the cause of it was due to the fact that the comparatively flat country over which that Force had to manœuvre was more suitable for cavalry evolutions than the mountains into which the Blue Force was driven. In all, 45,000 men, 4,000 horses, and 222 guns took part in the manœuvres.

It is not proposed to give a detailed account of the operations, as they would be of but little interest without a map of the manœuvre area. It may nevertheless be of interest to note some of the features of the manœuvres. The food supplies were delivered to the troops direct by the contractors, but a supply service was organised similar to one which would work in war. In each Force was formed (a) a subsistence store-house, replenished from cattle and herds on the spot; (b) a bakery with mobile ovens; (c) a supply column of 2 transport sections and trucks; (d) an army corps and infantry division supply section, and half a supply section for the cavalry brigade. During the marches and the manœuvres the soldiers' ration was fixed at the following: bread, $1\frac{1}{2}$ lbs.; beef, $\frac{1}{2}$ lb.; paste or rice, 4 oz.; bacon, 1 oz.; salt, $1\frac{1}{2}$ oz.; and in addition, 2 rations of coffee, or 1 of coffee and 1 of wine daily.

Experiments were successfully made with slippers, for wearing when resting in quarters, and also with compressed forage, which is sterilized and almost incombustible. The field bakeries worked perfectly, as they should do in war time. Each bakery consists of 4 ovens with a staff of 4 bakers. The bakery turns out 30,000 bread rations daily, and follows the troops at a distance of about $8\frac{1}{2}$ miles. Automobiles were far more used during the manœuvres than usual. Thirty cars were chartered, driven by their own chauffeurs or engineers, at a daily rate of pay of 10 lire per chauffeur and 5 per engineer, plus an allowance per kilometre. Great importance was attached to the telegraphic service and to that of the lines of communication. The Government provided all that the military authorities were unable to do. The Telegraph Regiment of Engineers sent 3 companies to the manœuvres, viz., 1 company for each force and 1 for the direction of the manœuvres. Wireless telegraphy was used on a large scale, and numerous optical telegraph stations were established which worked day and night, and could signal up to a distance of $14\frac{1}{2}$ miles. The ballooning service gave good results. The medical service was extended, as, indeed, was necessary owing to daily increasing exigencies. Experiments were also made successfully with a medicine satchel, with acetylene lamps for searching for the wounded at night, with beacons for indicating dressing stations, etc.

The mobile Militia furnished a complete division of men of 31 and 32 years of age, commanded almost exclusively by supernumerary officers. The 4 regiments forming it did very well; they bore, with cheerfulness, the fatigues of marches, of camp work and manœuvres, and proved that during the 8 or 9 years spent on leave, neither their military, their physical, nor moral qualities had deteriorated. No doubt the proportion of sick was greater with them than with the Regular troops, but this is not surprising.—*Précis from La France Militaire and Revue Militaire Suisse.*

RUSSIA.—*New Decree on Reports on Military Fitness.*—The recently-appointed new Russian War Minister, General Rediger, has found it necessary to point out that great care should be taken in the compilation

of the yearly reports on military fitness, and has issued the following order on the subject :—

“The nominations to the higher positions are made from waiting lists, which are compiled from the yearly reports on military fitness. The selection of candidates for the higher positions, as well as their promotion, depends on the accuracy of the reports with regard to their services and efficiency.

“In spite of their importance, these reports are very frequently inadequately prepared. They fail partly owing to a mechanical method of expression, which gives no indication of the opinion of the writer, and partly from a want of foundation for the opinion expressed. Thus the opinions of the higher authorities not unfrequently differ widely over one and the same person, or else the opinions on one person suddenly change in the course of a very short time, and that without any apparent foundation for this change. Under such circumstances the reports give no real weight to an opinion on the officers in question and to their fitness for higher commands. On the contrary, many individuals who have been promoted to higher positions at the request of the authorities over them, have later proved themselves unfitted for those positions.

“These useless reports can, however, only be explained by the fact that those placed in authority did not understand how to properly judge the merits and faults of their subordinates, or that they do not carry out this most important duty in earnest. The valueless report shows in both instances that the authority making it is not himself thoroughly fit for his position. Until the new regulation in contemplation on the selection of those waiting for commands appears, I herewith order, with the approval of His Majesty the Emperor, that :

- “1. All superior officers must pay great attention to the preparation of their reports on their subordinates.
- “2. According to the judgment of the superior officers themselves, with regard to the proper discrimination of the merits and faults of their subordinates, will their own efficiency be taken into consideration.
- “3. The reports can be made out in any convenient form, but in such a form as to give a clear and definite indication of the merits and faults of the individual in question.
- “4. The final decision with regard to every individual must be regarded as absolutely conclusive.”

Lessons of the Russo-Japanese War.—Some interesting articles under the title, “Taktische Erscheinungen des Krieges in Ostasien mit besonderer Berücksichtigung der Infanterie,” have been recently appearing in the *Militär Wochenblatt*, and the following are the conclusions arrived at by the author :—

“The war warns us before everything else against placing too much reliance on terrain and disinclination to assault, conclusions which threatened to become prevalent after the commencement of the South African war.

“There is no law which lays down the impossibility of carrying out an attack across open country.

“The idea, which originated in England, of a frontal attack in face of modern fire-arms, being an impossibility, cannot be maintained. An uncompromising determination to come to close quarters, such as our own troops exhibited in 1870, and the Japanese more lately, is of more

importance than fire effect. The principles of German regulations have again received their confirmation in the Far East, and it is only in their method of application that changes are desirable. The attack of to-day consists in the development of a powerful musketry fire as troops advance; and it is most important to convince the soldier that losses are unavoidable, and that they must be endured up to a certain point, and that the rifleman must not throw himself on the ground the moment the firing line encounters opposition. An advance to within effective range is the maxim for all.

"This is only possible when steps are taken to keep troops under control of their officers, and for as long a time as possible. But even the best directed fire is incapable of driving out a determined enemy. Fire duals can be maintained for hours at a range of 400 metres. An enemy equal in other respects to his opponent, yields first to the bayonet attack with its attendant cheering and beating of drums; and the better he knows that every time he gets up to retreat, and that every evacuation of his position leads to his own annihilation, the longer will he hold out.

"We cannot do without the bayonet attack in massed formations; it is, and remains, the crowning point of all assaults, and a condition essential to its success is that troops should learn how to use their bayonets in peace time.

"In training of this kind lies the moral counterpoise to all improvements in fire-arms. I would therefore advocate increased training in the use of the bayonet. Success is not to be achieved by a one-sided adherence to musketry, but by the development of individual capacity in the use alike of rifle, spade, and *arme blanche*.

"The Boers were beaten because they preferred a one-sided use of rifle and spade, and the Russian infantry found themselves at a disadvantage from the very commencement owing to their having been taught the use of the bayonet only."

Lessons of the War: Organisation and Tactics.—The *Ruskii Invalid* continues its publication of the collective reports of generals and field officers, and a recent number deals with the question of organisation and tactics, of which the following is an analysis:—

Organisation.—"Two questions have been especially brought to the front by the late war: that of divisional cavalry and that of the artillery command, from the point of view of the tactical preparation of generals of division during peace time.

"The invisibility of fighting formations caused, on the one hand, by the present quality of the fire, and on the other by its destructive power, requires that the commander directing the action should be always able to form a clear idea of the situation. He should thus have his own independent means of obtaining information, which should form an integral portion of his force and be bound up in its safety. The requirements of security have necessitated the formation of mounted scouting detachments in infantry regiments (2 officers and 100 men), and these detachments have been of enormous value. Should financial considerations not permit of their being kept up to strength in peace time, the cadres should, at any rate, be retained in order to give corps instruction in riding, reconnaissance and observation. In default of regimental mounted infantry scouts, 2 to 3 squadrons should be allotted to each division for its normal requirements.

"The second question was a particularly burning one at the commencement of the war. There were several cases of disputes arising with

regard to the selection of an artillery emplacement, the management of fire, objectives, observation, and the duties to be assigned to the artillery. Later on, when the various arms had lived together and got to know one another better, they realised that the war was not made for purposes of dispute amongst themselves, and many matters became simple and natural; but up to then favourable opportunities were lost and much needless loss entailed. The solution of the question would appear to be a simple one. Whoever is responsible should command. The chief responsible for the result should be thoroughly acquainted with all his means for action, and he knows them the better for having trained them himself. This question of the subordination of artillery is a very ancient one; but it has become more acute as the power of the fire of that arm has increased.

"The proportion of sapper—one company per division—has proved sufficient in practice.

"It is most desirable to have a machine gun company of from 16 to 20 guns as an integral and permanent portion of the division. The machine gun has acquired a very great importance, and the lack of it amongst the Russians, when the enemy had plenty, was very greatly felt. Machine guns, however, should be attached to the division and not to the regiments. They should be under the command of the divisional general, and only employed according to his instructions, forming, so to speak, a sub-division of a special arm."

Troop-leading. — "The more complicated that the action of a battle becomes, so much the more does the personality of subordinate commanders acquire importance. The co-ordination of the modern battle is only possible as regards unity of the object to be attained—an object thoroughly understood and logically followed by all. The precision of orders has given place to the clearness of the mission to be accomplished. The result of this state of things is that the conduct of modern battle demands:—

a. "The most thorough grasp of the situation, not of a restricted radius, but if possible of the whole theatre of war. The relative uncertainty of the general situation is most painful, especially during a battle, and if one is not thoroughly acquainted with it, it is impossible to act logically. Consequently, official information frequently arriving too late, we practised connecting ourselves by means of officers, not merely with the neighbouring divisions, but also with troops of a sector in which decisive action was taking place, even when they belonged to another Army.

b. "Orientation on the situation in one's own sector should be most complete, and the natural means to ensure it is the frequent despatch of information by regimental or detachment commanders, every hour or half hour, and even more frequently during critical periods of an action, and by sending out one's staff officers to reconnoitre. These constant and precise despatches clear the situation for the commander, and makes it possible for him to reflect calmly and to take his measures at the required time.

c. "The maintenance of connection in battle should be very amply provided for, and every body of troops finding itself, even by chance and temporarily, in the sector of a large unit should report itself without delay to the commander of the latter. Cases have occurred where troops came into action and batteries opened fire in the sector of another unit without reporting their presence. The results of an assistance thus rendered gave rise, it is unnecessary to say, to misunderstandings in the

most favourable cases, and in others to the lack of co-ordination in the command and to a bombardment not included in the plan of action.

d. "Improvised detachments are most harmful as regards the conduct of an important action. The Regular units, army corps, divisions, and even regiments, are broken up and weakened by them; individualism is carried to excess, and responsibility becomes impossible, and organic connections between the commander and the troops cease to exist. The considerable inconveniences resulting from this system, as regards administration, supplies, etc., are evident. They are particularly heavy when units thus employed pass into other divisions or army corps.

e. "Clearness of conception is the essential condition to a good command. Only those who have been on active service can realise all its importance. The slightest thing lost sight of by the superior authority often renders orders impossible of execution; hours are thus frequently wasted in explanation, and valuable time lost. We still suffer from an inability to clearly and crisply express our thoughts. To overcome this inability much work is necessary in peace time. The first condition is a clear comprehension of the mission and the means to carry it out; the second is practice.

"The normal form of orders is that of written notes (telegrams and telephone messages). These notes should be treated as regular orders for operations. As regards the telephone, it should be remembered that its employment carries with it the inconvenience of allowing the higher command to interfere with matters of detail so as to hamper initiative and to meddle with minutiae, and which takes up his time from more serious matters and worries those carrying them out. It is therefore advisable that telephones should only be used when rapidity of transmission is of vital importance, that is to say, within the division; in larger units it is replaced by the telegraph. Verbal transmission is inadmissible for important orders. Should it be necessary to send one, experience demands that the person receiving the order should at once put it in writing, and have it signed by the person giving it.—*Militär-Wochenblatt* and *La France Militaire*.

UNITED STATES.—*Report of the Military Secretary*.—Major-General Fred C. Ainsworth, Military Secretary of the Army, in his annual report states that on 30th June, 1905, the Army consisted of 3,800 officers and 57,433 enlisted men, not counting the Porto Rico Provisional Regiment of Infantry with 26 officers and 550 men, nor the Philippine Scouts, with 108 officers and 5,039 men. Of the 3,800 officers of the Army on the date mentioned, 843 belonged to Staff Corps and Departments, 765 to the cavalry, 663 to the artillery, and 1,529 to the infantry. Of the Staff officers, 749 were present for duty, 9 were sick, 31 on leave, and 54 on detached service. Of the 2,957 Line officers, 2,208 were present for duty, 42 sick, 235 absent on leave, 463 on detached service, and 9 in arrest. The retired officers on active duty numbered 84. During the year 156 officers were examined and 13 were re-examined for promotion under the provisions of the Act of Congress, approved 1st October, 1890; 147 were found qualified on first examination, 5 were found professionally or morally disqualified and were suspended for a year, and 4 were found physically disqualified, and were retired with the next higher grade. Of the 13 re-examined after suspension, 10 were found qualified for promotion, 1 was found professionally disqualified and was honourably discharged, and 2 were found physically disqualified and were retired

with the next higher grade; 4 of the 6 physically disqualified were retired after the close of the year, and one examined during the previous year was retired during the year. During the year 1 major-general and 10 brigadier-generals were appointed for the purpose of immediate retirement, and 7 colonels, 1 lieutenant-colonel, 1 major, and 2 captains on the retired list were advanced one grade under the provisions of the Act of Congress approved 23rd April, 1904. In addition to these, 3 colonels, 1 lieutenant-colonel, 1 major, and 1 captain, retired since the adjournment of Congress, are each entitled, with the consent of the Senate, to be advanced one grade on the retired list under the provisions of that Act.

General Ainsworth takes a gloomy view of the question of desertion, and discusses it at great length. The desertions during the year numbered 6,533, which is 6.8 per cent. of the whole number of enlisted men in service during the year. During the preceding year the desertions from the Regular Army were 6.6 per cent., the average for the preceding three years (1902-4) was 6.1 per cent., and for the preceding ten years (1895-1904) 4.5 per cent. of the total number of enlisted men in service. Commenting on this showing, General Ainsworth says:—

"Many different theories have been advanced to account for the frequency of desertions in the Army of the United States, for the relative infrequency of re-enlistments, and for the difficulty of obtaining from civil life suitable men to make good the enormous losses that the Army sustains even in a time of profound peace. The abolition of the canteen, the monotony of garrison life, the increasing amount of work and study demanded of a soldier, and the ease with which remunerative employment can be obtained in civil life in these prosperous times are all advanced as causes of the evils mentioned. Many remedies have been proposed, but none seems to be worthy of very serious consideration. Those who know how the canteen came to be abolished are not hopeful of its restoration; there is no likelihood of any such increase in the soldier's pay as will offset the greater inducement offered in civil pursuits; the comforts and even luxuries that are furnished to enlisted men in our Service are even now criticised by some as being not only extravagant but injurious in their effect on men whose real business it is to march and fight, encumbered with few comforts and no luxuries; and the discipline and instruction to which the soldier is now subjected are not likely to be relaxed in the future.

"The principal cause of the evils in question lies deeper than any of the causes commonly assigned for them, and is beyond the reach of any of the measures proposed. Our people, although aggressive enough, are not a military people. They have little real interest in the Army in time of peace, and from the earliest days of the Republic have been accustomed to look upon it as a more or less unnecessary institution that may be pared down with safety whenever a demand for retrenchment of public expenses arises. Enlistment in the Army in time of peace is not uncommonly regarded as evidence of worthlessness on the part of the recruit, and desertion in such a time is generally looked upon as nothing more culpable than the breach of a civil contract for service. The deserter suffers little or no loss of caste by reason of his offence, and is seldom without friends and sympathisers to shield him from arrest, and to intercede in his behalf in the comparatively rare event of his falling into the hands of the military authorities.

"It is safe to predict that desertion from the Army will continue to be excessive until there shall have been a radical change of public sentiment toward the Army, and until the deserter shall come to be

regarded as the criminal that he is, to be ostracised and hunted down as relentlessly as any other transgressor of the laws. There is no reason to look for such a change of sentiment in the near future, and there are some who believe that the change will never come until our people shall have learned, through national disaster and humiliation, that the effective maintenance of an Army of professional soldiers is absolutely essential to the preservation of the national honour and life, and that the trained and disciplined troops of a modern enemy cannot be withstood by hastily organised Armies of untrained or half-trained civilians.

"It is not unlikely that the leniency with which the military authorities themselves have treated deserters who have been apprehended and returned to military control has to some extent increased the number of desertions. It is safe to say that there is hardly a soldier in the Army who does not know that if he deserts he is likely, in the improbable event of his apprehension, trial by court-martial, and conviction, to be sentenced to a term of confinement of from a year and a half to two years and a half; that his term will be reduced one-third by good conduct on his part while in confinement; and that an appeal from him or his friends for clemency will probably result in a still further mitigation of his punishment. Much of this exhibition of clemency by the military authorities towards convicted deserters has been rendered necessary by the overcrowding of general prisoners at military posts and the lack of a general prison to which such prisoners can be sent; but the result, so far as the Army is concerned, is not changed by this fact.

"In view of the relatively small risk of apprehension run by a deserter, and of the certainty that if he is apprehended his punishment will not be very severe and may be very light, and especially in view of the indifference of the general public toward the offence, and the absence of any continuing political or other disability on account of it, if the deserter escapes capture and conviction by court-martial until the statute of limitation makes him safe, it is not a matter of wonder that desertions are as frequent as they are. For these reasons, and for others previously mentioned, there seems to be little ground for the hope that there will be any material decrease in the number of desertions in the near future."

The enlisted men discharged for various causes by order of the War Department during the year numbered 602, and there were 677 discharges by purchase. It appears that 2,030 desertions—or nearly one-third of the whole number—occurred during the summer months, and only 1,027—or less than one-sixth of the whole number—during the winter months. The desertions during the spring and autumn months numbered 1,770 and 1,706 respectively. It appears from the official returns that 1,980 men were gained from desertion during the fiscal year, but as many of these desertions occurred in prior years, the manner in which the men were gained, or the final disposition of their cases, cannot be ascertained without a more extended examination of records, covering a number of years, than is warranted. It has been ascertained, however, that of the men who deserted during the year, 696 were apprehended and 229 surrendered to the military authorities—a total of 925.

The need for recruits continued through the year. At the beginning of the year there were 60 officers on the general recruiting detail, and at the end of the year there were 89. The latter number includes 20 retired officers detailed under the provisions of the Act of Congress approved 23rd April, 1904, and 28 officers on duty at recruit depôts. On 30th June, 1904, there were 107 central recruiting stations, and on 30th

June, 1905, there were 110; 60 of these were main stations and the remainder were auxiliary stations.

General Ainsworth explains that the detailed results of the small arms competitions, held during the practice season of 1905, have not yet been compiled. Those results will be announced as soon as the compilation shall have been completed.

In view of the recommendation of various department commanders that separate small arms competitions be held for officers and men, and of the fact that in four of the fifteen competitions held in the United States, and in one of the five held in the Philippine Islands, fifty per cent. or more of the medals awarded were won by commissioned officers, it would appear that the time has arrived when the question of the practicability of instituting separate contests for officers and enlisted men should receive consideration.

The cases handled in the Military Secretary's Office during the year numbered 266,438. The index-record card work of the past fiscal year included the preparation of 776,655 military cards and 12,194 medical cards, making, with the number previously prepared, a total of 46,133,128 of the former and 7,814,811 of the latter class, aggregating 53,947,939 index-record cards prepared up to and including 30th June, 1905. This number includes 2,739,072 Confederate military cards, 774,586 of which were prepared during the year.—*U.S. Army and Navy Journal*.

Comparative Health of Armies.—One of the most interesting features of the annual report of the Surgeon-General of the Army is a comparative study of the health of representative Armies. The comparisons are based upon the annual medical reports of the Armies represented and are drawn with reference to international tables mutually approved by the governments concerned. It should be understood, however, that comparisons are not absolutely exact and cannot be. In the United States, for example, the admissions to the sick report include all soldiers who are excused from any part of their military duties, which is not the case in any other country. Our admissions also include those from that portion of the Army serving beyond our continental limits, which is not the case with any other country except Great Britain. The United States and Great Britain are required to depend upon voluntary enlistment, while all other countries have conscription. Again, the strength is differently estimated in different countries. Some have a low death rate because their sick are promptly discharged or retired and thus are out of the service instead of on sick report. Our admission rate was the highest, 1354.89. Russia's rate was lowest, 351.30. The death rate was also highest in the United States Army—6.75, and lowest in the Prussian Army—2.10. The non-effective rate was highest in the United States Army, 49.80, and lowest in the Prussian Army, 24.65. The showing in the matter of alcoholism, including delirium tremens, is particularly striking. The admission rates for such disorders per 1,000 men of mean strength were as follows in various Armies:—United States, 25.50; British, 3.2; French, 0.11; Prussian, 0.09; Bavarian, 0.19. It is to be noted, however, that in foreign Armies none but hospital admissions for alcoholism are counted. It will be observed that the lowest rate is in wine- and beer-drinking countries, the beverages it is proposed to serve at the canteen.

The admission rate in our Army for malaria is eighty times as great as in the French Army, but our death rate for the same disease is only

five times as great. The British have less than half the admission rate for dysentery that we have, but their death rate is practically the same as ours, and, while their admission rate for malaria is about the same as ours, their death rate for malaria is three times as great. The returns as to measles and mumps make a worse showing for the United States Army than for any other, except the French. Our death rate for tuberculosis is also higher than that of other Armies save the French, but that is accounted for in some degree by the fact that in our Army tuberculosis patients are sent to a sanatorium and retained in service for long periods, whereas in other Armies they are promptly discharged. It is General O'Reilly's belief that our high death rate for tuberculosis is due to some extent to defective medical examination of recruits. The admission rates for typhoid per 1,000 of mean strength are:—United States, 4.77; British, 9.9; French, 4.3; Prussian, .70; Bavarian, 5.2; Russian, 4.0. "The undue prevalence of typhoid fever in the Army," says General O'Reilly, "is partly explainable by its undue prevalence in the civil communities where the troops are stationed, as a result of the general failure to purify water and sewage in American municipalities."

Professional interest in the comparative health of Armies will doubtless be greatly increased by the medical returns from the late war in the Far East. Of the Russian service the world as yet has heard little or nothing, and there is nothing to do but wait for the official reports. But that the reports from the medical authorities of the armies lately in conflict will be useful to their brethren in Europe and America admits of no doubt whatever. There is no man in world who is readier to profit by the experience and counsel of his professional brethren than the military surgeon of to-day. He is a student as well as a practitioner. The duty required of him is of increasing importance, and every war has its compensation for him, in that it broadens his scientific knowledge and enlarges his usefulness in his special field of activity. The medical service of our Army has been greatly enriched by the experience of the last seven years in Cuba, Porto Rico and the Philippines, and that experience has distinguished the Medical Corps of the Army as equal to the ablest bodies of its kind in the world. There are uncompleted tasks awaiting it, as General O'Reilly clearly shows, but that they will be successfully performed, no sane man can doubt for a moment.—*U.S. Army and Navy Journal*.

CORRESPONDENCE.

SHOULD QUICK-FIRING BATTERIES OF FIELD ARTILLERY CONSIST OF SIX OR OF FOUR GUNS?

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—Not many years ago a similar controversy raged as to whether batteries should consist of eight or six guns, and, with the slow rate of fire prevailing at that period, it was generally conceded that for continuous fire at a reasonable interval, i.e., such as would permit of observation, in an 8-gun battery No. 1 gun would be ready to fire before its turn arrived to fire again, involving a waste of power, and that in a 4-gun battery No. 1 gun would not be ready in time, thus involving an undesirable pause or slowness in fire.

The guns of a battery being thus interdependent, 6 guns were considered to constitute the most satisfactory fire unit, and to yield a larger proportional effect than 8 guns.

We find the same considerations prevailing in the earlier days of infantry fire.

In the days of Gustavus Adolphus, an attempt was made to obtain a continuous volume of musketry fire by means of a phalanx of 13 ranks, each of which fired in succession, and then ran round and formed up in rear to reload. Later, with the muzzle-loading rifle, the rear rank man loaded while the front rank man fired. Now every rifle is capable of individual action.

With the introduction of the quick-firing gun, the rate of fire being at least six times as rapid, it is evident that, from the point of view of a fire-unit, the argument for six or any other number of guns has entirely disappeared, or in other words, that the fire of 6 guns merely represents six times the fire of one gun or similarly with four or any other number.

The single gun is thus (like the rifle) now capable of individual action, and possesses all the gunnery qualifications of a fire-unit.

The question now is, how these fire-units may most conveniently be grouped together, both from a tactical and administrative point of view.

Having regard to difficulties of ammunition supply and the fact that, in the event of a gun being disabled, all its ammunition, men, and horses would be non-effective, it is generally held that the detachment of a single gun is inadvisable, and that, although both guns of a section would be capable of fire at separate targets, the section of two guns under a subaltern constitutes the smallest practicable working unit.

It is submitted that the command of three such sections, under decentralised conditions, would be easier than that of 6 guns under those prevailing hitherto, especially as 3 batteries, analogously situated from the point of view of fire control, are not an excessive command for a brigade commander.

As far, therefore, as possibilities of fire-command and fire-control are concerned, there would appear to be no reason for a reduction in the number of guns in a battery from 6 to 4.

From an administrative point of view, it is generally admitted that a unit consisting of about 200 men, 150 horses, and 20 vehicles, of which 15 or 16 would represent guns and ammunition, is the largest that can be effectively commanded and administered by one man, and represents the maximum size of a battery.

There is thus no question of increasing materially the amount of ammunition carried by a battery, but merely whether that amount can be more effectively thrown from a smaller number of guns.

A change from 6 guns to 4 in a battery thus represents the substitution of 2 wagon-bodies for 2 guns, with a net increase of only (about) 120 rounds in a battery, and a rearrangement of the *personnel* and *matériel* in four sub-divisions instead of six. There would be a reduction of one subaltern and two sergeants, involving an undesirable disproportion in those ranks, and the remainder would be more heavily taxed to the extent of 50 per cent.—in fact over-taxed. There is no precedent for 100 men, 75 horses, and 10 carriages constituting a subaltern's command. The functions of the captain, with three lines of wagons, would also be far more onerous, and those of the major would be in no way decreased by the substitution of depth for frontage in his command. The replacement of casualties amongst officers would also be more difficult.

There does not, therefore, appear to be any justification for the views of some writers, who assume that a 4-gun quick-firing battery would be a captain's command.

As regards the larger units of artillery, the *personnel* of the 4-gun battery being the same as that of 6 guns, it does not appear that the Field Artillery Brigade could consist of an increased number of batteries.

Four 4-gun batteries, *i.e.*, 16 guns, would be a more difficult command than three 6-gun batteries, or 18 guns.

From the point of view of the army corps, "Field Army Establishments, 1898," though out of date, serves most conveniently to illustrate the general bearings of the question. According to this authority, the artillery of an army corps consisted of, in round numbers, 140 officers, 4,450 men, 4,300 horses, and 572 vehicles, representing, roughly, 100 guns (102) and 30,000 rounds of ammunition, about half of which was in battery charge and the remainder in the ammunition columns and parks. It will be seen that there are great difficulties in a material increase to these numbers, and that here also there is no question of an appreciable increase in the number of rounds available, but merely a redistribution of that number amongst a smaller number of guns; and again the question is: "Whether a total of 30,000 rounds can be more effectively thrown from 68 guns than from 102," or in other words, whether the reduced number of guns will be proportionately more powerful.

In the Franco-German war cases certainly occurred of guns being crowded out, but with the tendency to increased extension of front this condition now appears less probable, and even in such a case there is nothing to prevent the greater part of the ammunition from being diverted to the guns actually engaged.

To sum up, for a given establishment of men, horses, and vehicles, a change from 6 to 4-gun batteries represents a reduction of 33 per cent. in the number of guns and an increase (in an army corps) of about 2,000 rounds, or about 6 per cent., in the total amount of ammunition, besides difficulties in organisation.

It thus appears very doubtful whether any such change is desirable, though the advantage of having an increased supply of ammunition per gun immediately available, may outweigh the above drawbacks.

It is, however, evident that no increase in ammunition commensurate with the increased rapidity of fire of the gun is in any way practicable, and that periods of rapid fire must be compensated for by periods of inactivity.

The utmost development of ammunition columns and parks working in the closest communication with the batteries appears to be indicated, and that a more forward position on the line of march will be required.

The development of motor transport for artillery ammunition also appears of vital importance, and just as there are hospital trains with definite establishments, so that there should be "artillery ammunition railway trains," carrying so many rounds per gun, commanded by artillery officers, protected from penetration of small-arm and shrapnel bullets, with an establishment of *personnel* capable of affording a certain degree of defence and of carrying out the most rapid transfer of the ammunition to wheeled transport, the movements and position of such trains being indicated in orders just as in the case of other units constituting the Field Army.

Yours truly,

F. J. S. CLEEVE, Major, 28th Battery, R.F.A.

Barrackpore, Bengal.

NAVAL AND MILITARY CALENDAR.

NOVEMBER, 1905.

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- 4th (Sat.) 4th Hussars arrived in South Africa from India in the R.I.M.S. "Canning."
- " " 2nd Bn. Duke of Wellington's (West Riding Regiment) left India for England in the "Plassy."
- 8th (W.) 4th Bn. Rifle Brigade left England for Malta in the "Assaye."
- 9th (Th.) T.R.H. the Prince and Princess of Wales arrived at Bombay in H.M.S. "Renown."
- 11th (Sat.) 7th Hussars left South Africa for England in the "Dilwara."
- 12th (S.) 4th Bn. Worcestershire Regiment left Barbadoes for Malta in the "Zaria."
- 13th (M.) 5th Bn. Royal Garrison Regiment left Halifax, N.S., for England in the "Canada."
- 15th (W.) H.M.S. "Assistance" was refloated in Tetuan Bay.
- 16th (Th.) 4th Bn. Rifle Brigade arrived in Malta from England in the "Assaye."
- " " 1st Bn. Royal Dublin Fusiliers left Malta for Egypt in the "Assaye."
- 17th (F.) Loss of German torpedo-boat destroyer "S 26" through collision, with 33 lives.
- " " The Earl of Minto, Viceroy of India, arrived at Bombay.
- 18th (Sat.) H.R.H. Prince Charles of Denmark was elected King of Norway and adopted the title of Haakon VII.
- 20th (M.) 1st Bn. Royal Dublin Fusiliers arrived in Egypt from Malta in the "Assaye."
- " " 2nd Bn. Rifle Brigade left Egypt for India in the "Assaye."
- 21st (T.) The Secretary of State for War announced an important reform with regard to the Army General Staff.
- " " The 98th and 103rd Companies R.G.A. left Halifax, N.S., for England in the "Kensington."
- " " 5th Bn. Royal Garrison Regiment arrived in England from Halifax, N.S., in the "Canada," and was disbanded.
- 25th (Sat.) Launch of first-class armoured cruiser "Warrior" at Pembroke Dock.
- " " It was announced that the total Japanese casualties during the late Russo-Japanese War were 218,429 killed and wounded, and 221,136 sick.
- 27th (M.) H.M.S. "Leviathan" arrived at Chatham from Mediterranean.
- " " 2nd Bn. Duke of Wellington's (West Riding Regiment) arrived in England from India in the "Plassy."
- 30th (Th.) 98th and 103rd Companies R.G.A. arrived in England from Halifax N.S., in the "Kensington," and were disbanded.

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NOTICES OF BOOKS.

The Science of War. By the late Colonel G. F. R. HENDERSON, C.B.
London: Longmans, Green & Co.

This is a collection of essays and lectures written and delivered during the last twelve years of his life by the gifted soldier, whose death—little more than two years ago—was a real loss to the British Army, in which he so firmly believed, and to the comrades who appreciated a great intellect and a charming personality.

In reviewing, recently, the *Times' History of the War in South Africa*, Sir Edwin Collen recommended that *The Science of War* be read as a corrective to the somewhat depressing influence of the first-named work; and it is certainly no small relief to turn from the perusal of a military history by an able pressman—who would have us think that everything is at its worst in the Army—to these papers by an able soldier, who thoroughly believed in the Service of which he was so bright an ornament. The very earliest of these essays—the chapter on "War"—is full of the soundest teachings for the nation as well as for the soldier, while the words written ten or twelve years ago find their application in the unpreparedness of to-day. "If," wrote Colonel Henderson, "war were generally and more thoroughly studied, the importance of organisation, of training, of education, and of readiness, would be more generally appreciated; abuses would no longer be regarded with lazy intolerance; efficiency would be something more than a political catchword; and soldiers would be given ample opportunities of becoming masters of every detail of their profession." To the chapter on "War" succeeds that on "Strategy"—the strategy of the statesman no less than that of the general—while in the paper on "The Tactical Employment of Cavalry" will be found a discussion on the duties of that arm, interesting and instructive to all leaders of mounted men. But the chapters which will perhaps, after

all, be most widely read and studied, are those dealing with the events and the teachings of "that four years' struggle which is called by one side the Great Rebellion, by the other, the War of Secession." No Englishman has given more study to the history of the Civil War than did Colonel Henderson—no one certainly has known better and worked harder than he to extract fullest value from its lessons; but the several chapters on the war between the North and South show most clearly—as we cannot but think that the writer intended them to show us—the uses and the limitations of the amateur soldier, of men of the same class and of almost the same training and experience as the Volunteers of the United Kingdom. "Enthusiasm and intelligence will not stand the stress of battle and the hardships of campaigning, unless their possessors have learnt to subordinate their reason and inclinations to their duty"—unless in short, they have become disciplined until obedience has become an instinct, and to-day, more than ever, it is apparent that few, except professional soldiers, understand the nature or the value of discipline.

Unusual interest attaches to the last chapter in the book—the chapter on "The British Army"—containing some of the last words which Colonel Henderson ever wrote; and, in connection with recent discussions in Parliament and in the Press, the following extracts from sentences penned more than two years ago by the most able of England's younger soldiers, possess an abiding interest:—"It is unquestionably the fact, that the attitude of the nation and the legislature towards the education of the officer was one of supreme indifference. The true nature of war had never been brought home to them. They had forgotten, if they had ever heeded, the terrible warning of the Crimea. Since the days when Napoleon threatened invasion, the instinct of self-preservation had not been touched. Deep down in the national heart lay the belief that the Army, after all, was only the second line of defence. So loudly had the impossibilities of invasion been preached to them, so long had been their period of immunity, that to the people of Great Britain the chances of the soldier being called upon to protect the Empire from dissolution and their countrymen from ruin, seemed remote in the extreme." And, again:—"In the long struggle, which ended at Trafalgar, it was not upon the Navy alone that the burden fell. The operations, though in every respect maritime, were by no means exclusively confined to blue water, nor carried through by the broadsides of the battle-ships and the cutlasses of the boarders. The troops did their full share. They captured more arsenals than fortresses; more ships of war than regimental colours; more positions on the seaboard, commanding or threatening the trade-routes, than inland lines of entrenchments. They were, more familiar with long voyages than with long marches; with sudden embarkations and swift onsets than with the protracted manœuvres of a regular campaign."

In laying down this book, one experiences a double regret: that one who possessed so masterly a knowledge of his profession did not live longer to influence his comrades by further teaching, and that a man so able was not spared for high command. To this collection of soldierly, scholarly essays, Lord Roberts contributes a brief and appreciative memoir, and few will be found to disagree with his closing words:—"The influence of such a man must bear good fruit, and the more widely his writings are read, and the more closely his teachings are followed, the more successful will be our would-be commanders, and the better it will be for England, when again she is forced to go to war."

PRINCIPAL ADDITIONS TO LIBRARY, NOVEMBER, 1905.

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- Der Infanterie-Angriff in den Neuesten Kriegen.* By FREIHERR VON FREYTAG-LORINGHOVEN. 8vo. (Ernst Siegfried Mittler & Sohn.) Berlin, 1905.
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- The Siege of Port Arthur.* By D. H. JAMES. 8vo. 10s. 6d. (T. Fisher Unwin.) London, 1905.
- A Staff Officer's Scrap-Book during the Russo-Japanese War.* By Lieut.-General Sir IAN HAMILTON. 8vo. 18s. (Presented.) (Edward Arnold.) London, 1905.
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